RECREATION

Preliminary Draft Compiled

By: State Commission Staff

with extension assistance form:

7/1/74

Draft - Not for Distribution

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Preliminary Draft Compiled by

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This volume will be one of a series of background reports being prepared for the Coastal Zone Commission by the State and Regional Commissions' staffs, by various State agencies, and by private consultants. Summaries of these reports are also being prepared for wide distribution. These reports will provide the Regional Commissions with basic information upon which (a) to make their recommendations to the State Coastal Zone Commission for statewide policies, and (b) to recommend regional variations and amplifications of these policies. These findings and policies will, taken together, form the plan for the future of the California coast.

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STATE OF CALIFORNIA

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Dear Paul:

Thank you for your September 12, 1975 bibliography on coastal recreation. I noticed that you have included the Recreation and Public Access findings and policies from our Preliminary Coastal Plan. Perhaps of greater assistance to other coastal planners is the background technical report upon which the findings and policies are based. I have included a copy of this report for your information and hope it is of some value.

Regards,

WILLIAM TRAVIS
Assistant Chief of Planning

WT:ts

Enclosure

CHAPTER I

OVERVIEW OF COASTAL RECREATION

Introduction

The California coastline is a recreational resource that virtually defies the imagination in its scope and variety. Along its sometimes dramatic, sometimes serene 1,072 miles of beaches, headlands, and sculptured waterfronts, one can enjoy recreational pursuits ranging from the gentle leisure of the pure solitude found in a forest of ancient redwoods nurtured by coastal fogs, to the shattering excitement generated by piloting the raw energy of a high-powered boat across the mirror surface of a coastal bay. According to the California Coastline Preservation and Recreation Plan: "In 1970, more than 127 million recreation days[1] were spent at the shore. Visitors came to camp, picnic, swim, skin dive, surf, fish, beachcomb, wade, photograph, paint, boat, water ski, or to just relax and enjoy the spectacular scenery where the ocean meets the land" (CCP&RP, p. x).

It has been contended that the two factors which, more than anything else, led the people of California to approve Proposition 20 in 1972 for the purpose of protecting their coastline, were: (1) their outrage at the rapid development along the coast which changed the character of many coastal communities and closed off portions of the coastline to public use; and (2) their desire to see the coast preserved and enhanced for the continued recreational use of the general public. The public's desire to

1 A "recreation day" is a statistical unit of recreation use, consisting of a visit by one person for all or a portion of one 24-hour period. One recreation day may consist of one or several activity days by the same person. A recreation day would merely reflect the attendance at a given area. The "recreation day" in conjunction with an "activity day" can be defined as the demand, in terms of total numbers of people and types of activity they participate in (CCP&RP, p. x).

use the coastal resources for recreation has been evidenced both by the heavy use of coastal recreational facilities and the analytical studies of the existing and projected demand statistics which show that there is a shortage of almost every kind of recreational facility along the coastline, and that this shortage will continue to grow. The existing and projected shortages are most severe within an hour's driving time of San Diego, Los Angeles, and San Francisco. This need for more recreational facilities breeds the classic stories of the southern California boater who is overjoyed because he finally found a berthing space that is within only three hours of his home and after being on a waiting list for only two years. This, in turn, has led to the frivolous suggestion that a marina should be built from the Ventura County line to the Mexican border. Although such an extreme move might temporarily satisfy the boaters' needs, it would deprive the surfers, beach users, and other recreationists of coastal areas for their favorite pursuits, for while some activities can be enjoyed in the same general area, other recreational activities preclude the enjoyment of some forms of recreation. Thus, despite its seemingly endlessness, the California coastline is a resource of finite proportions. Moreover, much of the southern California coast is already urbanized so that recreational use is not always possible. This loss of coastal recreation potential combined with the high population concentration has created a situation in southern California where it may never be possible to meet all of the demand for all of the activities. Along the central and northern California coastline, the situation is not quite as extreme but adequate land use controls and a careful allocation of coastal resources is necessary in order to make headway toward meeting the need for coastal recreational facilities.

This introductory chapter addresses these broad issues of recreational use of the California coastline by: (1) examining the concept of measuring recreation demand; (2) looking at the conflicts between some activities and means of resolving these conflicts; and (3) applying this demand and conflict information to the resource requirements of the most common types of recreational activities encountered along the coastline. Subsequent chapters deal with specific issues in greater detail.

Recreation Demand

Whether engaged in an overall master planning process or simply trying to determine if an existing park should be expanded, some idea of "recreation demand" is helpful in making planning decisions. Sometimes the demand is clearly indicated by heavy overuse of existing parks, public outcry for a new recreational facility, or the overwhelming approval of a bond issue to finance new parks. But, for the most part, such information is an expression of current demand and useful only for short-range planning. In planning for long-range future, it is necessary to rely on the statistical tool of "projected recreation demand", which is an estimate of the amount of participation in various recreational activities at some time in the future.

Recreation demand is normally expressed as "potential recreation demand"; this is the demand for a recreational activity which would exist if there were adequate facilities for the particular activity and the price of the activity relative to other commodities remained the same over time. This is a different use of the term "demand" from that normally used in marketing. In this field demand is related to cost, and cost is often related to supply: all other considerations being

equal, the more expensive something is, the less demand there will be for it; the lesser the supply of something, the greater the price. However, in projecting recreation demand it is assumed that the cost of the activity relative to other commodities will remain the same whatever the supply of facilities. Of course, this is not really the case. But it has been necessary to make this simplification in order to develop a workable system for generating recreation forecasts.

This compromise illustrates that recreation demand forecasts (like other regional demand forecasts for dwellings, transportation, water, etc.) are not nearly as definitive as forecasts for single products in a market economy. Sophisticated methods of projecting recreation demand have not yet been developed, and until they are, the use of "potential recreation demand" is the only tool available.

In order to make projections for California, the Park and Recreation Information System (PARIS) has been developed by the California Department of Parks and Recreation. This system, which is generally considered to be the most sophisticated recreation demand model available, utilizes a methodology developed for the use of the Outdoor Recreation Resources Review Commission's detailed study of recreation in this country published in 1962. In the ORRRC work, 22 basic outdoor recreational activities were identified and related in popularity to seven socioeconomic characteristics of the population. By projecting the socioeconomic characteristics of segments of the future population of the United States, it is theoretically possible to forecast the demand for the 22 recreational activities. The end product of the ORRRC's projections using this method is expressed in "participation days"—the number of days or portions of days on which a participant engages in a specific activity.

Many potential problems have been identified with this particular methodology even though most authorities consider this to be the most accurate method of forecasting potential recreation demand. For example, in its recommended master plan for the East Bay Regional Park District, a consulting firm enumerated the following problems with the projecting technique employed in PARIS:

1. The basic data on which projections are made date from 1960. The Bureau of Outdoor Recreation published in 1965 and 1970 Surveys of Outdoor Recreation Activities; however, the detail of the data is not adequate for updating the original base data. Furthermore, the more recent reports indicate that the activity-socioeconomic parameters developed in 1960 may not remain constant over time.

2. The information available may not be directly applicable to the California coastline because the data are not broken down into information about the coastline or even the entire State of California. Instead, California is one of eleven states included in the Western Region of the United States.

3. The projections of recreation demand are based on data which may be somewhat inaccurate. The base data utilized were derived from a survey of the actual use of existing facilities, and ignored non-users (OVERVIEW, p. 4).

Moreover, because the PARIS forecast is regional in scope, it cannot reflect subtle differences in demand that exist along the coastline. For example, the State Department of Parks and Recreation study of Recreation Problems in the Urban Impacted Areas of California (published in October 1970, but based on 1960 census data) reveals that the recreational activities in which "urban impacted area"[1] residents most participate in are: (1) watching television; (2) reading; (3) sewing; (4) visiting friends and family;

1 Urban Impacted Areas are large multi-neighborhood areas which exhibit abnormally high concentrations of various social maladies: high unemployment, high underemployment, low incomes, high rates of dropout from school, low education attainment, high rates of public health problems, high rates of family instability, high rates of juvenile delinquency, substandard housing, substandard governmental services, etc.

and (5) going to local parks. The activities they would most like to participate in are: (1) fishing and hunting; (2) bowling; (3) swimming; (4) going to the beach; and (5) dancing. To resolve the discrepancy between actual participation and desired participation, residents were asked "What keeps you from doing...(name of activity)...more? The most common response was "cost". Personal responsibilities, transportation problems, inadequate parks and lack of opportunities were also cited. This is indicative of the type of factors that can influence the demand for the use of a specific coastal area particularly in heavily urbanized southern California.

In addition to the PARIS projections, the Department of Parks and Recreation surveyed users at selected State parks along the coast in 1969 to determine use levels for 19 activities in the immediate shoreline area. Estimates of total use levels for all recreational areas on the coast were made from visitor attendance information for selected park units, and the visitor attendance was extrapolated to 1980 by comparison with PARIS projections. The activity patterns revealed in the surveys were then imputed to the projected recreation attendance for use in the California Coastline Preservation and Recreation Plan. By comparing the 1969 coastal survey with the PARIS projections for 1970 Table #1 has been developed. It shows the estimated recreational demand for various activities in the coastal zone for 1970 and the projected demand for 1980. Some of the shoreline related activities like surfing were measured only in the coastal survey and not in the PARIS report. For these activities, it has been necessary to assume the 1970 demand levels were equal to the coastal survey estimated use levels. An unsatisfied additional demand may not have been measured. If so the demand figures shown in Table #1 are underestimates.

TABLE

RECREATION DEMAND FOR COASTAL ACTIVITIES[a]
(Thousands of Activity Days[b] annually)

Activity	1970 estimates				1980 projections			
	North	Central	South	Total	North	Central	South	Total
Ocean swimming,wading,sunbathing	3500	12600	69000	85100	4500	18600	100000	123100
Surfing	50	1500	37000	38550	80	2200	51000	53280
General Beach Use	8000	26000	94000	128000	10000	32000	93000	135000
Beachcoming	2000	7700	14000	23700	3000	11000	19000	33000
Fishing	1400	7400	7800	16600	2100	10000	10000	22100
Boating	1200	2400	7400	11000	1600	3100	9700	14400
Underwater activities	270	250	1900	2420	400	360	2600	3360
Nature Study	500	1300	2200	4000	750	1700	3200	5650
Photography/painting	2400	8700	21000	32100	3700	13000	29000	45700
Sightseeing	3500	6000	26000	35500	5300	8000	26000	39300
Driving for Pleasure	6000	13000	26000	45000	8000	17000	35000	60000
Walking for Pleasure	10000	25000	64000	99000	13000	32000	80000	125000
Viewing/attending interpretive exhibits/programs	1700	740	1900	4340	2500	1000	2600	6100
Picnicking	2300	11000	37000	50300	2900	17000	50000	69900
Camping (developed facilities)	1300	11000	17000	29300	1900	16000	24000	41900
Hiking	950	3000	4900	8850	1400	4400	6600	12400
Horseback riding	460	790	1600	2850	600	940	2200	3740
Bicycling	3000	8000	22000	33000	4000	9700	31000	44700
Wilderness hiking/camping[c]	490	4000	6000	10490	700	6000	9000	15700
Dunebuggying	50	740	3900	4690	80	1100	5300	6480

a Sources for all activities except wilderness hiking/camping: CDPR (1971) and PARIS data supplied by Calif. Dept. of Parks and Recreation, 1974 (see text). North region includes Del Norte, Humboldt, Mendocino, Sonoma, and Marin county coastlines; Central region includes S.F., S. Mateo, S. Cruz, Monterey, and S. Luis Obisps county coastlines; South region includes S. Barbara, Ventura, L.A., Orange, and San Diego county coastlines.

b A recreation activity-day is equal to spending all or part of a calendar day in one recreation activity. Activity-days may be counted for one or more recreational activities engaged in by one person in one calendar day.

c BOR (1974) reports wilderness camping use equals 38% of developed camping use in 1972 National Recreation Survey. That proportion was applied to obtain preferences shown here.

Despite all their shortcomings, recreation demand projections are widely used in planning, largely because the projections are the only means available for anticipating the future recreational needs of our society. But any use of demand forecasts must be made with a full appreciation of their shortcomings. The projection techniques are rather unsophisticated and they utilize unproven assumptions. In addition, highly specific data are generally unavailable and could not be used effectively in the projections even if they were available. Moreover, using demand data alone as the determinant for planning recreational areas along the coast would not necessarily be consistent with the protection of the coastline. Furthermore, the projections cannot take into account such phenomena as the rather rapid rise in the popularity of bicycles and the sudden slump in recreational vehicle sales as a result of the energy shortage. And the popularity of many recreational activities is related to the opportunities to pursue the activity so that adding new facilities can increase the popularity of an activity as well as fill some of the recreation demand. Therefore, the demand data should be used only as very rough indicators of trends rather than specific targets for planning. Overall, they indicate that there is a demand for almost every kind of recreational activity along the coastline requiring a wide range of recreational facilities, each planned and managed to accommodate the maximum number of recreationists within a broader program of coastal protection so that the natural character of the coast is not sacrificed to a specific recreational activity which may be short-lived in popularity.

Conflicts Between Recreational Activities

Richard Henry Dana, writing in 1835, opens a window through which the reader may view a pristine coastal landscape, in what would later be called southern California:

> "The rocks were as large as those of Nahant or Newport, but, to my eye, more grand and broken. Beside, there was a grandeur in everything around, which gave almost a solemnity to the scene: a silence and solitariness which affected everything! Not a human being but ourselves for miles; and no sound heard but the pulsations of the great Pacific! and the great steep hill rising like a wall, and cutting us off from all the world, but the world of waters!" (Two Years Before the Mast).

Today, the coastline below the headland which bears Dana's name has been drastically altered by the force of leisure time. Restaurants, marinas, and picnic areas, all perched atop fill dirt, now occupy areas of once-open sea. In its present configuration, Dana Point and vicinity reflect the priorities of the private sector in maximizing its profits from recreationists in the absence of adequate land use controls.

The creation of a small craft harbor here in the 1960s expanded the number of recreational opportunities originally offered by nature. But the development was only accomplished at the expense of the existing uses which had utilized the natural features of the site for years. Since the early days of surfing in California, Dana Point had been known as one of the finest summer surfing areas in the State. The waves that broke there were unusually large, and easy to ride. Today, waves approaching Dana Point die in a brief surge against a massive stone breakwater. The same resource which drew hundreds to the area in its natural state, is now only a menace to the facilities which attract thousands. The participants in those activities excluded at Dana Point moved on to other suitable sites, some of which were already approaching their capacity in terms of user experience. According to

the Western Surfing Association, the conversion of Dana Point to a boating facility "was a tragic loss especially in light of estimates by lifeguards that persons actually using boats number about the same as surfers and skindivers who used the area prior to harbor development" (WSA, p. 4).

Similar skirmishes between mutually exclusive or incompatible uses of recreation areas continue to be waged along the coast, as participation in all activities spirals upward. Competition among activities has come to assume a wide variety of expressions, but all forms of competition share a common denominator: the point of conflict is a coastal resource or setting which the competing uses need for their continued fulfillment. Recreational enthusiasts come to the coast in search of experiences which place divergent demands on both natural resources and public support facilities. For some, the experience is provided by a specific element of the coastal ecosystem. For others, the meeting of land and sea adds a unique flavor to activities common to all outdoor recreation areas. Many activities require alteration of the natural environment to varying degrees, while others are enhanced by preservation of areas free of the signs of human intrusion. These dichotomies result from variations in individual perception of the coastal zone and the recreation opportunities which it offers (Mercer, 1972). Thus, a devotee of a particular activity may be unaware of, or insensitive to, the needs of other users sharing the characteristic of coastal dependency. Public education programs may be of assistance in averting conflict through increased awareness on the part of users. Yet in a society as diverse as ours there will be continued potential conflicts arising because of social, economic,

and cultural differences. Where a particular recreational activity is identified with a particular socio-economic group, providing (or eliminating) facilities for this activity can have social equity consequences. For example, the replacement of an open field by a golf course could be seen as discriminatory against the children who use the field for ball playing and in favor of golfers. Further study is needed to determine the types of socio-economic groups that would benefit from different recreational activities, and the extent to which a group would benefit.

Often the conflicts between recreational activities may lead to the enjoyment of one or more activities being reduced or eliminated at the expense of another more dominant activity. This "shared use" conflict occurs when two or more incompatible activities converge on a single site in sufficient strength to interfere with one another. The need to segregate board surfers from swimmers is the result of a potentially dangerous shared use conflict. In its most serious form, the conflict between two uses will result in the complete demise of one of the activities at the common site if alteration of the area in favor of a particular activity results in the permanent elimination of opportunities for other activities at the site. This is exemplified by the alteration of the natural area at Dana Point to accommodate boating but at the expense of surfing.

Just as there are conflicts between activities, so is there internal conflicts within an activity. These result when the number of participants increase faster than new sites can be opened to accommodate them causing either competition between recreationists (e.g. campers who must make reservations for the limited number of campsites) or deterioration of the recreational resources (e.g. the depletion of living

resources in coastal tide pools from overuse). These internal conflicts can be minimized only by managing the recreational resource so that the use level is below the "carrying capacity" of the facility. The establishment of the carrying capacity and the management techniques available for controlling overuse are discussed in detail in Chapter IV.

Increased pressure on coastal resources as a result of a swelling coastal population is one facet of the problem of conflicting uses. Another, which has received somewhat less publicity to date, is the rapid rise in popularity of a wide array of new activities which continue to emerge in a fashion that complicates long-range planning. In what ways will the public use the resources of the coast twenty years from now? The fact that this question cannot be answered in a complete manner is reflected in the history of the well-established recreational activities discussed in this chapter. Although many have been in existence in some form since the early days of coastal settlement, it has only been within the past two decades that the majority of these activities have achieved widespread popularity among dedicated enthusiasts from all walks of life. The impetus for such growth is often so unlikely as to elude the attention of those in position to cope with resulting demands.

In the case of some activities, sightseeing and general day use for example, sheer increase in population concentrations within easy driving distance of the coast will almost certainly produce increased demand for visual access and public open space (Mercer, 1972). Far less predictable than population increase, but equally important, are technological innovations, fads, and changes in societal values. In turn, it is difficult to envision the changes in patterns of use which may result, and the subsequent demands on coastal resources that such

new uses may foster. The current popularity of underwater activities, for example, could only be achieved after the perfection of a self-contained underwater breathing apparatus which was safe and easy to use. The sport of surfing, now enjoyed by thousands of Californians, was practiced for hundreds of years before the development of a lightweight surfboard and a fad-like explosion of popularity vaulted it to national prominence, via Hollywood, in the late 1950s. And finally, changing values are evident in the recent desire to "get back to nature", in a society where wilderness areas have frequently been synonymous with discomfort and boredom.

The uncertain nature of future recreation demands does not preclude effective planning to accommodate real or potential conflict among existing activities. It does, however, suggest that a great deal of flexibility be incorporated into present decision-making to facilitate the emergence of new uses at some point in the future. Most importantly, adequate coastal areas must be preserved to meet future recreation needs. In addition, in order to maximize the recreational opportunities available along the coastline while minimizing the potential conflicts, three planning concepts lend themselves well to the allocation of coastal resources. These are: (1) identifying and isolating recreational activities that have a high potential for conflict with other activities; (2) maximizing the public use of an area by providing multiple use facilities; and (3) providing upland support facilities so that the immediate coastline can be reserved for coastal-related recreational activities. Each of these is discussed below.

1. Activities of High Potential Conflict

Many outdoor recreational activities are generally compatible and can be accommodated in relatively close proximity within the same park area. Swimming, hiking, fishing, nature study, and camping are not only compatible but are often enjoyed by the same person during an outing along the coastline. Unfortunately, a few activities have some characteristic associated with them that makes the activity objectionable to many people. These characteristics may include noise, dust and dirt, some unattractive visual quality, odors, or physical danger; they are most often associated with mechanical recreational devices such as off-road vehicles (dune buggies, dirt motorcycles, etc.), recreational vehicles (motor homes, trucks with camper bodies, travel trailers, etc.), or power boats. While the users of these mechanical devices often want to enjoy picnicking, fishing, swimming, and other activities as part of their coastal recreational experience, other picnickers, fishermen, and swimmers often do not share an enthusiasm for the mechanical devices and their side effects.

This situation has led to controversies at a few coastal recreation areas and can be expected to lead to more unless resolved through a policy decision. In some cases it may be relatively easy to resolve these differences of view by designating some areas for use primarily by mechanical recreation enthusiasts while prohibiting the devices in all other areas. To be successful, this approach must be pursued in cautious moderation. The growing popularity of mechanical recreation and the limited supply of facilities for their enjoyment can be used to make a strong case for the development of numerous new facilities or the conversion of existing facilities to mechanical recreation areas.

However, as explained in the section on Recreation Demand, there is an unmet demand for facilities for virtually every recreational activity along the coast. Meeting the demand for mechanical recreation areas can cut into the supply of more traditional recreational facilities. Moreover, the long-term effect of the energy shortage on these activities is still uncertain. Therefore, with the limited open space left for recreation along some portions of the coast, at most only a few areas should be designated for mechanical recreation and only as part of a balanced overall program that provides additional areas for the whole spectrum of recreational activities from water skiing to wilderness hiking.

Beyond the recreational conflict potential, there are sometimes serious environmental problems such as erosion, visual deterioration, and vegetation destruction associated with use of off-road vehicles. Moreover, extensive alteration of the natural environment is often necessary to accommodate recreational vehicle campgrounds and boat berthing facilities. (These environmental alterations are discussed more extensively in separate sections of this report.)

Given the multiplicity of problems associated with these mechanical recreational activities, it is best to accommodate them at inland sites wherever possible rather than to utilize unique coastal resources. Inland, larger areas not in demand for other types of recreation can be reserved and managed for dirt bike riding and four-wheel-drive vehicle use with a minimum of conflict with other activities. By setting aside large areas the use areas can be rotated over time, allowing the natural vegetation to rejuvenate; this is not possible at small coastal sites. Where there is some justification for a coastal

location for the activities (as in the case of boat facilities or recreational vehicle campsites), the facility should be located only on a site that can tolerate the planned use with a minimum of long-term environmental damage. As with any facility development necessary for recreational use, the development should be carried out with a minimum of damage to the natural environment from activities such as grading, filling, dredging, and vegetation removal. Chapter V sets forth specific recommendations for meeting boating needs with a minimum alteration to the coastal environment. Finally, a recreation management program should be developed to monitor the effect of the recreational activity on the land and to allow for the rehabilitation of the natural landscape if the recreational use begins to deteriorate natural conditions.

2. Multiple Use Recreational Areas

Existing coastal recreational areas such as Alamitos Bay and Mission Bay, are of critical importance both because of their commitment to multiple uses and because of their proximity to major urban population centers. Great care must be taken to assure that demands generated by population increases on adjoining lands and in interior areas do not overwhelm one or more of the multiple uses of these bays or exceed the recreational carrying capacities of the bays as a whole.

Both Mission Bay and Alamitos Bay exemplify the manner in which coastal areas (and in particular, bays) and their adjoining land areas can be put to multiple use. The two bays not only provide extensive boat slip facilities but also provide major recreational uses often lacking in marinas, such as expansive swimming and picnicking areas, small craft sailing and open space areas usable by children and the elderly. However, both areas are experiencing increasing recreational

demands which may cause conflicts among recreational uses competing for a limited supply of water and land area. In the case of Mission Bay, commercial recreation areas have expanded at a rapid rate, leaving only two significant land areas to satisfy both active and passive use demands. Similarly, the scarce land resources around Alamitos Bay are also rapidly disappearing in the face of massive residential and commercial development. The same is true of northern California areas such as the inner harbor of Santa Cruz. The most precious potential recreational resources of the bays and harbors are thus being committed at a rapid rate. And yet these commitments of land resources are being made prior to an assessment of the long-term recreational needs which must be served by these areas and without precise planning for effecting appropriate balances between active and passive uses (e.g. water-skiing and picnicking) and commercial versus public uses. In particular the needs of less vocal groups, such as the elderly, are often not addressed as other needs are met. Furthur conversion of land areas adjoining bays should not be permitted until long-term recreational demands are thoroughly assessed, balances between competing uses are planned for and specific implementation plans are developed for acquiring or preserving lands for recreational uses.

The second major resource of the bays--the water areas--is being taxed by conflicting demands being placed upon the very limited water area. Mission Bay, for example, has experienced a clash between commercial boating demands and sailing uses. A substantial increase in boat slips in Alamitos Bay may well alter the existing balance struck between the inner bay uses devoted to small craft and the access channel demands required by craft heading out to the ocean. The pressure being placed on small craft sailing areas is all the more a concern because so few bays and marinas provide any meaningful area for these uses.

The increasing commitment of the few remaining land areas and the steadily increasing use of finite water areas also combine to threaten the recreational values of current and potential wildlife uses of the bays. Prior to the drastic physical changes wrought by man, both Mission Bay and Alamitos Bay, for example, were major wildlife areas. Despite the legacy of the destruction of habitat areas, the preservation of the few remaining wildlife areas often is an afterthought and the restoration of wildlife areas is rarely seriously considered. Before any further land and water areas are permanently committed, existing wildlife areas must be preserved and the very real possibilities of marsh restoration and the creation of wildlife habitats must be explored in depth. The potential for marshland rehabilitation in urbanized areas may be limited because of possible mosquito propagation problems; however, experiments by the State Department of Fish and Game in Suisun Bay have established that the mosquito problem can be minimized if an adequate tidal flow is provided to allow flushing and avoid stagnant waters. Moreover, because funding limitations further limit rehabilitation programs, all existing wildlife habitats should be preserved for future generations. It is not only the wildlife values inherent in such uses that justify the highest priority for protecting areas with wildlife potential but the educational and recreational values of wildlife areas also dictate their preservation. For the elderly and for inner city children, frequently members of minority groups, such wildlife areas may provide their only easily accessible contact with diverse plant and animal life.

The massive increases in residential development in areas adjoining bays and boating harbors not only consume precious land resources but also generate additional recreational demands on these areas. For instance,

over 3,000 dwelling units were built in the Pacific Beach area immediately adjoining Mission Bay without the addition of any open space to serve the recreational needs of the increased population. Over 1,700 dwelling units, with another 900 planned, have been added to the Alamitos Bay area without the provision of public use areas to serve these units. The inevitable result is the conversion of resources of statewide significance to a local park as the new residents appropriate the public areas for their own recreational needs. The only way to prevent statewide recreational resources from becoming overwhelmed by private residential development, in essence converted to local park use, is to prevent increases in nearby residential densities unless open space is provided to serve the new units. This could be done through public purchase, private dedication, assessment district acquisition or other approaches. Moreover, local municipalities should share greater responsibility for providing recreational facilities for new developments they allow so that State and regional facilities are not pre-empted for local use.

Many coastal areas currently devoted primarily to one type of use, e.g. marinas or residential areas, have the potential for multiple recreational uses. The possibilities of increasing the forms and types of recreational uses is particularly significant in the urban coastal areas of southern California where few open areas remain. Both the lack of open space and the need for close-in recreation areas brought about by the energy shortage require that areas with the potential for multiple recreational use be tapped to the utmost.

3. Upland Support Areas

Within the coastal zone, but back from the immediate shoreline and often separated from the coastline by the coastal highway are upland

areas that can be used for recreational support facilities in two basic ways: (1) ancillary facilities (e.g. parking lots, maintenance buildings, and campgrounds) that do not have to be located on the immediate shoreline can be located inland so that the limited and valuable coastal lands can be reserved for ocean-related recreational uses; and (2) upland facilities can add size and diversity to a coastal recreation area and thereby make it a multiple use facility. This may be done in as simple a way as providing picnic tables and grassy play areas so that very old and very young members of a family can be comfortable throughout a family stay at the beach. In a more elaborate form, upland support areas can link beach areas to overnight camping sites, regional hiking trail systems, and commercial facilities so that the usefulness of the beach site itself as a source of pleasure is multiplied by enabling it to serve as a portion of a larger system.

This latter function of upland support areas is of special importance in the rapidly urbanizing areas of southern California and in major metropolitan areas where a large number of people live within a short distance of a limited number of available parks. The "multiplier effect" of increasing the number and type of attractions available to the recreationist allows the maximum possible benefit from the limited amount of open land remaining along the coast.

The concept of tying together coastal beach parks with related upland support areas is particularly important in protecting natural habitats while also providing needed recreational opportunities. Fragile natural resources can be protected from overuse—and still be visited and observed—if multi-use attractions are developed at less sensitive upland

locations. By siting more intensive recreational uses such as camping and field sports on adjoining upland areas, sensitive habitats can remain accessible for occasional recreational and educational use without the threat of being overwhelmed. Simultaneously, appropriate linkages can safeguard public access to the public beaches.

Upland support areas may also serve to direct the pressure of commercial development from the immediate coastal area. If the high-intensity multi-use area is developed along the immediate coastline, it can create pressures for associated strip commercial development which may impede access and detract from the total coastal experience. By linking together coastal and upland areas, public and private recreation facilities and support services providing a variety of use activities complementary to the public enjoyment of natural recreation resources can be located and designed to support rather than compete with natural beach areas.

Similarly, visitor traffic can be channeled to inland commercial recreation nodes and the demand for such services focused, thus allowing developers to provide greater diversity, quality, and price range of services, thereby opening the coast to a wider range of the public.

Channelization of visitation traffic into inland nodes may also facilitate efforts to provide public transportation services to reduce traffic along the coast. Where major public access is by car, parking areas might be placed inland and small-scale transportation systems could link parking areas with commercial services while still leaving the water's edge open. This separation of automobiles from recreation areas is increasingly important in light of the recent finding that "exercising in a milieu of high levels of air pollution may contribute to other health problems such as chronic respiratory disease, emphysema, and lung cancer" (Everett, p. 83).

Examination of an example of possible linkages between beaches and related recreational destinations demonstrates the potential lure of well-designed and integrated facilities. Maui has gained nationwide recognition as having outdistanced the other Hawaiian Islands in providing an attractive mixture of beach activities, upland recreation (golf, riding, tennis), historical interest (Lahana), and related retail development. By combining these within a limited area, public transportation among the various uses (including nearby public beach parks) has been emphasized to a larger than normal degree in developments owned by a number of different firms.

Examples of other types of coordinated recreational systems exist within the present parks system. In the extreme northern portion of the State, inland support parks, such as the State operated campsite at Russian Gulch State Park offer the substantial advantage of providing a warmer more wind-free climate for campers. Protected swimming areas in the coastal streams and estuaries add to the range of possible activities. In central California, a number of major recreation areas are already being designed to reflect multi-use concepts and the accompanying goal of removing the more intensive support services from the immediate beach area. San Mateo County's proposals for development of the village of Pescadero into a visitor service area is one such example. Another is the focus upon inland campsites connected to the coast by hiking and bicycle trails in the Federally owned Point Reyes National Seashore. The Golden Gate National Recreation Area in San Francisco and Marin Counties will link urban sites with rural recreational areas to provide the visitor with a wide choice of activities. Another existing example is the Skunk Railroad Willits-Fort Bragg excursion route, which combines

a coastal trip with forestry experiences and the novelty and historic perspective of a steam-powered railroad trip. Availability of this cross-mountain linkage also diverts a number of trips up the Sonoma-Mendocino coast each summer.

Sheer necessity, as well as sensible planning, dictates that inland coastal-area open spaces be preserved and linked with the immediate shoreline. As major population increases have shifted into Orange and San Diego Counties, available major open space there has dwindled rapidly just at the time that recreation demands have increased drastically. Major increases in leisure time and discretionary income have further increased the disproportionately large user demands in these affluent areas.

For instance, only four major open areas remain on the Orange County shoreline. Development proposals have already been received for two of these, and development of the others is being actively considered. Residential development has almost entirely pre-empted a major park proposed in 1965 for the area between Crown Valley Parkway and the Dana Point headlands. At the same time that most of the spectacular Orange County coast has been lost as public open space, the area's very rapid population increase had placed severe demands on the few available public coastal areas. The large planned communities proposed for southern Orange County will further increase these residential and recreation pressures. The 1970 population of 38,000 in southern Orange County will more than triple by 1990, while the County as a whole is expected to almost double in population--from 1.4 million in 1970 to 2.1-2.4 million by 1990.

A similar pattern--rapid loss of coastal shoreline areas at the very time that substantial population increases are occuring--has been experienced in northern San Diego County. Even now, few significant

open areas remain on this immediate shoreline. However, the existing public beach areas will be forced to serve not only current user demands but also the demands created by substantial future growth, increased tourism, higher per capita incomes and more leisure time. San Diego is the second fastest growing county in the State, while beach cities such as Carlsbad project tremendous growth by 1990--some 75,000 persons, compared to a present population of 17,000.

The current pace of development on the coast and immediate inland areas in southern California not only threatens to overwhelm the few public recreational areas presently available, but also to consume inland support areas which are vitally necessary to serve future recreation needs. A recent Orange County planning study projects that within a 70-mile radius of southern Orange County there will be 1,170,000 day-users and 360,000 overnight visitors demanding recreational facilities by 1990. A San Diego regional parks study concluded that State beaches can meet only 10 percent of the beach camping demand projected for 1980. The alternative to overloading these beaches is establishing inland support parks. But this will be extremely difficult because even now there is a shortage of inland open areas in northern San Diego County. If the conversion of open space into residential development is allowed to continue, there will be no possibility of acquiring the inland support areas for coastal recreational areas which will almost ensure that the coastal environment will be over-used and dispoiled even though the projected recreation demand is not met. The current pace of development threatens to "condemn" current shoreline public recreational areas by forcing upon them recreational demands which these areas cannot meet.

While southern California faces the most immediate pressures for the protection of upland areas for recreational uses, a similar situation exists in other portions of the coastal zone. In San Mateo County, for instance, increased beach recreation demands from the rapidly growing San Jose, Santa Clara County, and San Francisco peninsula areas have caused increased pressures to expand Highway 1. Such expansion would permit even more residential development along the coast and heavier use of coastal recreational facilities. Similarly, substantial recent improvements of cross-mountain access have already increased coastal recreation demand by residents of the San Joaquin Valley and other inland areas. Thus, if the concept of providing upland support areas for coastal recreational facilities is to be realized, these upland areas must be protected from urbanization just as the coastal areas must be protected from overuse.

Recreational Activities Along the Coast

The recreational activities enjoyed along the California coastline are many and varied. However, in the following pages the most popular activities are discussed in terms of the general description of the activity, its resource requirements, the demand for the activity, and some of its potential points of conflict with other activities. The existing supply of facilities to accommodate many of the activities is tabulated in Table #2. Table #5 in Chapter II shows the supply of beach areas along the coastline.

1. Beach Use

This activity includes ocean swimming, wading, sunbathing, surfing, beachcombing, and the myriad recreation pursuits from sleeping to engaging in active sports which are categorized as "general beach use". These

TABLE #2

PUBLICLY AVAILABLE [illegible]ATIONAL RESOURCES AND FACILITIES IN THE COASTAL ZONE[a]

Resource/Facility	Distribution by Regional Commission						
	North	North Central	Central	South Central	South	S. Diego	Total
Boat Access sites[b]	1203	3308	1188	1023	19922[c]	6378	33022
Picnic Tables[d]	454	399	1587	1915	1231	933	6519
Miles of Trail (foot and horse)[e]	131	139	216	40	16	11	553
Developed Camping sites							
auto access[f]	679	78	414	1465[h]	272	397	3305
hike-in[g]	6	48	0	25	0	0	79
Wilderness Shoreline[i]							
units	4	3[j]	0	0	0	0	7
miles	36	32	0	0	0	0	68
Coastal Wilderness Areas[k]							
units	4	1	3	0	0	0	8
square miles of area	53	12	67	0	0	0	132

a Facilities available at the shoreline and in a coastal zone up to five miles wide.

b Public and Private individual berthings, moorings, or parking spots associated with launching ramps; data supplied by Calif. Dept. of Parks and Rec. from 1969 inventory.

c. Includes 700 berths on Santa Catalina Island.

d Data supplied by California Dept. of Parks and Recreation from 1969 inventory.

e Trails shown on Calif. Dept. of Parks and Rec. 1969 inventory plus additions developed at federal recreation areas since 1969.

f Tent and trailer sites at state and federal properties. Data for state parks from CDPR (1971); for federal recreation facilities supplied by National Park Service and Bureau of Land Management for 1973.

g These are developed hike-in campsites and do not include informal or wilderness camping sites. Data supplied by National Park Service for 1973.

h Accessible by boat at Channel Islands National Monument

i Publicly-owned undeveloped shorelines at least four miles long, out of sight and sound of on-land development and at least one mile from the nearest public road. In some cases, these are presently privately-owned but scheduled for public acquisition and presently available to public use. Data developed for this study.

j Administrative motor vehicle use occurs within one-half mile of shoreline along 12 miles.

k Publicly owned (or scheduled for imminent acquisition) roadless and undeveloped areas which could qualify as wilderness under the 1964 federal Wilderness Act, located at the shoreline or a short distance behind up to the coastal ridge. Minimum size considered was five square miles. None have been formally established as Wilderness Areas.

activities require sandy beaches which the California Coastline Preservation and Recreation Plan has classified as being either of swimming quality (slightly sloping beach with water temperature above 60°) or non-swimming quality (steep beach with cold water and/or adverse ocean currents). The distribution and ownership of the State's sandy beaches is shown in Table #5. Overall, sandy beaches are well distributed along the coastline but only 15 miles of the total 290 miles of sandy beaches suitable for swimming are located north of Point Conception. Moreover, only 40 percent of coastal beaches are publicly owned. In addition to the beach area itself, beach activities require transportation to the beach, sanitary facilities, parking, and guarded areas for swimming. Because beach users have traditionally used the private automobile to reach the coastline, large areas near the beach have been needed for parking lots. Fortunately, with the exception of surfers, beach users do not generally bring a great deal of equipment along with them, so the provision of public transportation may be a viable alternative to building more parking lots, especially for heavily-used beaches near urban areas where in some cases, space is so limited that portions of usable sandy beaches have been paved over for parking. In addition to this conflict between automobiles and beach users there is sometimes a conflict between surfers and swimmers at some beaches during the summer months. In some cases, it has been necessary to employ time sharing and zoning programs to separate these activities. The Western Surfing Association has just completed a survey and evaluation of all coastal surfing beaches from Santa Cruz south. This information should allow the most outstanding surfing areas to be set aside for that sport so as to avoid conflicts with other activities.

The supply of swimming beaches is extremely limited along the northern part of the coast due to natural shoreline conditions. Along the central and southern portions of the coastline, the present supply of public swimming beaches is adequate to meet the demand for beach activities through 1980, but only if sufficient parking or alternative transportation to the beach is provided and, in some cases, only if people are willing to travel up to two hours to reach public beach areas (CDPR, California Coastline Preservation and Recreation Plan). In many areas the development of inharmonious land uses which would despoil the scenic and natural appearance of the coast could reduce the effective supply of beaches for beach activities even though the beaches themselves were to remain untouched.

Surf breaks appropriate for surfing have been identified at many locations along the California coast by the recent National Surf Life Saving Association Surf Break Survey. Certain surf breaks along this coastline are unique and classified as "classic breaks", due to their important role in the history and heritage of the sport, in addition to providing consistent surfing waves of the highest quality.

Surfing waves are caused by underwater terrains comprised of rock reefs and/or sandbars, frequently in combination with river-mouths, points of land, piers, groins and jetties. Most surf breaks are seasonal in nature, breaking best either on summer swells from storms off Mexico and Central America, or winter swells generated by storms in the North Pacific.

Conflicts between surfers and other users are primarily between (1) the boating community and their desire to construct harbors and marinas, which would eliminate or decrease the surf at many heavily

used and high-quality surf breaks, (2) with ocean swimmers and waders for whom loose surfboards constitute a safety hazards, and (3) with coastline users that obstruct access to surfing breaks.

2. Boating

Boating activities fall into two general categories: (a) still-water boating which utilizes the coastal bays and lagoons for water skiing, small boat sailing, powerboat racing, and bay fishing; and (b) open-sea boating which includes deep sea fishing, scuba diving, sailing, vacation cruising, and excursions. The major requirement for all boating activities is the provision of mooring and launching facilities in protected waters. The distribution of public and private boat access sites is shown in Table #2. Eighty percent of these are located in three southernmost coastal counties where seas are calmer and temperatures warmer.

Over the last 18 years there has been a large increase in the number of recreational boats in California--from 95,000 in 1955 to 474,000 in 1973 (Department of Motor Vehicles registration data). Moreover, there are approximately 8,000 larger boats registered with the U.S. Coast Guard. This growth has resuled in a tremendous demand for boating facilities along the coast which is statistically documented in the Boating Resources Development Planning Study completed for the State Department of Navigation and Ocean Development (DNOD) by Arthur Young & Company in October, 1973. From studies conducted by the State, the Federal-State Framework Study Group, and private consultants, DNOD has estimated the present shortages of berthing spaces along the coastline as follows:

Del Norte to Mendocino	- 1,000
Sonoma to San Mateo	- 1,400
Santa Cruz to Santa Barbara	- 2,000
Ventura to San Diego	- 10,000

Based on the same studies, DNOD estimates the shortage of launching lanes as follows:

Del Norte to Mendocino	- 50
Somona to San Mateo	- 70
Santa Cruz to Santa Barbara	- 110
Ventura to San Diego	- 150

There are also deficiencies in available mooring/anchorage, transient berthing, and refuge berthing facilities. Although a quantification of this shortage has not been undertaken since 1964 (Leeds, pp. 9-10), other studies have shown the need for these facilities in localized areas.

To project how this demand is to be met, in July 1973 the Department of Navigation and Ocean Development contacted several coastal government agencies to review the harbor development plans that are under consideration. The results of this survey are shown in Tables #3 and #4. The column labeled "Planned Additions" applies to ideas being formulated, approved plans, projects being financed, and work under construction. In many cases, it will take from five to ten years for the completion of these planned additions. (Future development plans for marinas in San Francisco Bay are shown because they affect the demand for boating facilities along the ocean coastline.) By comparing the total present shortage of 14,400 berthing spaces with the planned addition of 15,566

HARBORS UNDER GOVERNMENTAL JURISDICTION

HARBOR	JURISDICTION	EXISTING SLIPS	PLANNED ADDITIONS	MAXIMUM CAPACITY
Table #3 - Northern California				
Crescent City	Crescent City Harbor District	300	250	1,000
Eureka	City of Eureka	130[1]	250[1]	380[1]
Vallejo	City of Vallejo	500	0	500
Noyo	Noyo Harbor District	302	0	302
San Francisco Marina	City and County of San Francisco	731	0	731
Pillar Point	San Mateo County Harbor District	0	1,100	1,100
Berkeley	City of Berkeley	604	228	932
Emeryville	City of Emeryville	265	235	1,000
San Leandro	City of San Leandro	400	100	500
Martinez	City of Martinez	350	0	350
Pittsburg	City of Pittsburg	185	0	185
Redwood City	City of Redwood City	200	0	200
Coyote Point	San Mateo County	460	460	920
Oyster Point	City of South San Francisco	290	300	590
Foster City	Estero Municipal Improvement District	0	457	457
Santa Cruz	Santa Cruz Port District	791	0	791
Moss Landing	Moss Landing Harbor District	400	100	1,000
Monterey	City of Monterey	340	60	400
Port San Luis	Port San Luis Port District	0	300	1,000
	TOTAL	6,248	3,840	12,338
Table #4 - Southern California				
Santa Barbara	City of Santa Barbara	481	123	824
Ventura	Ventura Port District	390	800	2,000
Channel Islands-Oxnard	County of Ventura	1,000	535	2,500
Marina del Rey	County of Los Angeles	5,800	200	6,000
King Harbor	City of Redondo Beach	1,420	0	1,420
Los Angeles Harbor	Port of Los Angeles	3,115	3,750	7,000
Long Beach Marina	City of Long Beach	1,850	118	2,200
Long Beach Harbor	Port of Long Beach	775[2]	4,000[2]	4,000[2]
Newport Bay	Orange County & City of Newport Beach	7,200	400	7,600
Dana Point	Orange County Harbor, Beaches&Park District	1,426	900	2,300
Sunset Aquatic-Huntington	Orange County Harbor, Beaches&Park District	300	0	300
Oceanside Harbor	Oceanside Harbor District	740	0	740
Mission Bay	City of San Diego	1,500	500	2,000
Shelter Island	Port of San Diego	2,283	0	2,300
Harbor Island	Port of San Diego	1,156	400	2,150
	TOTAL	29,636	11,726	43,334

1 Information provided by the City of Eureka

2 Information updated by the Port of Long Beach

Source: Department of Navigation & Ocean Development, July, 1973.

berthing spaces over the next five to ten years, it is clear that the future supply will just barely cover the existing demand.

To compound this chronic shortage of berthing spaces, there are sometimes conflicts between different types of boating activities (such as water-skiing and sailing) and between boating activities and other recreational activities. But the major point of conflict lies in the vast alteration and potential destruction of the coastal environment that may be necessary to accommodate small boat facilities. Because of the complexity of the overall boating situation, an entire section of this report (Chapter V) has been devoted to the subject of small craft facilities.

3. Fishing

The excellent recreational fishing opportunities available in California coastal waters have received national attention both because of the abundance and the variety of species available. Sport fishing is conducted from boats, piers, and from the shore itself with more than half of the fishing being done either from shore or from piers. In the northern counties, shore and pier fishing accounts for about 80 percent of the total (CCP&RP, p. 66). In addition, deep sea fishing fleets operate from nearly every major port along the coast.

The basic requirements for the continued enjoyment of sport fishing are: (a) maintenance of an adequate fish population; and (b) access to the shoreline or boats to fish from. Some of the problems in managing

the fisheries population are discussed in the Marine Environment Plan Element. In this report, access to the coastline is discussed in Chapter II, Public Access, while a broader evaluation of the recreational boating situation is addressed in Chapter V, Small Craft Facilities.

4. Underwater Activities

Using either a snorkel and mask or SCUBA (Self Contained Underwater Breathing Apparatus) gear, divers along the coastline enjoy spear fishing, underwater exploring and photography. Diving is conducted from boats or directly from the shore. Because of the need to transport equipment, divers will probably have to continue to rely upon the automobile as a mode of transport to their diving sites. The need for parking facilities can be great in some localized areas, because while there is no shortage of ocean to dive in, there is a shortage of quality areas of high scenic and biotic interest. Diving from shore is favored along segments of rocky coast, most of which is above Point Conception. For example, over 70 percent of the diving activity which occurs from Point Conception north to the Oregon border takes place in the very small confines of the Monterey Peninsula area (Miller, et al.). South Coast divers often utilize boats to reach offshore banks rich with marine life. Some need shore-based access and parking near the diving areas might be eliminated if more access could be provided by boat. The underwater activities are carried out in rocky and intertidal areas where water clarity is greater, and marine life abundant. Warm water is not a necessity due to the protective suits used by the majority of dedicated divers. As with fishing, the maintenance of healthy populations of marine life and uncontaminated waters is necessary to ensure future opportunities for divers. There is presently a shortage of accessible areas in a near-natural state;

therefore, it is necessary to protect good diving areas and add more of them. In the Marine Environment Plan Element, the over-harvest of selected species by divers is discussed briefly. To protect these species for use by other fishermen and enjoyment by other divers, a strict program of regulating divers harvest may be necessary.

5. Camping

The provision of facilities for overnight camping on or near the beach allows thousands of Californians and visitors from other parts of the nation the opportunity to enjoy experiences which would otherwise be limited to nearshore residents. Opportunities for both tent and vehicle camping are available in widely varied settings along the coast. Variations in user preference as a function of climate and shoretype have been found to exist. In southern California, campers prefer to be on or near the beach. In northern California, the preference is for campgrounds removed from the shore in sheltered areas (California Dept. of Parks and Recreation, 1972). Demand for campsites in all parts of the State outstrips supply for varying periods during the peak months of summer, as outdoor living continues to increase in popularity. The distribution of campsites in State, Federal, and local parks and recreation areas along the coast is shown in Table #2. These represent most of the campsite supply along the coast, although some additional sites are provided by private operators. Present camping facilities can accommodate 67 percent of the demand in the north coast, 63 percent along the central coast, and 35 percent in the southern portion of the coast. Overall, only 47 percent of the present demand for campsites along the coast is being met (CCP&RP). Some of this unsatisfied demand might be met with the development of little more than simple roadside rest

areas along the coast highway to be used by recreational vehicles. A total of 1,120 campsites on the northern coast, 2,240 on the central coast and 3,340 on the south coast are needed to meet 1970 demands for camping on all but the peak 20 days of the summer (Calif. Dept. of Parks and Recreation, 1971). Presently programmed expansion of State park campgrounds (the primary supply on the coast) will increase the number of sites by 2.7 times from 1970 to 1980 (CCPRP, 1972), while camping demand is projected to increase only 1.4 times during that period. If these programs are carried out, they will considerably improve the camping supply in the coastal zone.

Because of the recent gasoline shortage there has been some conjecture that the demand for recreational vehicle (RV) campgrounds might drop off. However, this does not seem to be the case. RV users seem to have accepted the higher cost of gasoline and sales have picked up again. Last year there was only a three percent overall drop in the industry's sales. Moreover, RV owners seem to be limiting their long distance travel and instead enjoy "Ten-Gallon Weekends" where they visit recreational areas they can travel to and return from on a tank of fuel. This practice will place even greater pressure for campgrounds along the heavily-populated southern California coastline.

The types of facilities needed for traditional tent campers, recreational vehicle campers, hike-in campers, boat-in campers, and groups often differ greatly and may range from a simple pit toilet and water source, to elaborately developed sites with concrete pads and water, power and sewer hookups for some recreational vehicle and trailer campers. Camping requires sufficient upland areas to accommodate capacity use approximately 20 days per summer. The total number of units to be provided (maximum capacity) is figured as a function of proximity

to population concentrations and past attendance, resulting in variations in space requirements at different points along the coast. Traditionally, campsite design has been oriented toward tents and small trailers (without hookups); however, an increase in the use of campsites might be possible through modification in the design and construction of campsites so as to accommodate more diverse activities. For example, off-season recreational activities might be encouraged through the construction of shelters for other recreational or education uses. Moreover, locating campsites in upland areas rather than directly along the coastline would permit the immediate coastline to be used for general day use activities without diminishing the camping experience.

Because of the great demand for campsites, there is sometimes congestion within campgrounds and overuse of facilities. The resolution of this problem is obviously the provision of more campsites. However, these are often provided by expanding the campgrounds into a part of a coastal park that had been in a natural condition and open to general use. Thus, as in the situation where sandy beach areas are paved over to provide parking for beach users, so can the expansion of campgrounds destroy the very values which drew the campers to the coastline.

Problems of environmental damage can be particularly acute in providing camping accommodations for recreational vehicles (motor homes, trucks with camper bodies, and travel trailers). Unlike tent camping which requires relatively small campsites that can be incorporated into the natural landscape, recreational vehicles require large areas for maneuvering, level pads to allow proper functioning of their equipment, and, ideally, sewer and water hookups at each site. To provide this

type of facility it is necessary either to grade flat pads into the rugged coastal topography or to use existing flat lands. In the first case, the necessary cutting and filling causes serious visual blight and can lead to severe erosion problems. In the second instance, the flat land is also sought by builders for the development of houses. Along some parts of the coast, residential development has eliminated many potential recreational vehicle campground sites and driven the price of the remaining open land so high as to discourage its acquisition for campgrounds. Unfortunately, this can lead to the use of the beach itself for recreational vehicle camping such as at Pismo Beach where RV's have had relatively unlimited use of the beach for camping. This practice resulted in a reduction of the general day use of the beach by the public and has generated a health hazard because of the alleged illegal dumping of holding tanks onto the beach. To resolve this sort of situation it is necessary to provide adequate sewer facilities and to patrol and maintain the campgrounds. Given these requirements, recreational vehicle camping should not be permitted directly on the beach. Instead, campgrounds should be located within easy walking distance of the beach in coastal uplands where utilities and services can be provided more easily. This will also allow recreational vehicle campers and other recreationists to enjoy our beaches without conflicting with each other.

Thus, RV campgrounds should be located where relatively large level campsites can be developed with a minimim disturbance to the natural environment. There should be both adequate vehicular access to coastal roads and pedestrian access to the beach. Yet the provision of this access should not overload the capacity of coastal highways

or interfere with general public access to the beach. And the campgrounds should be richly landscaped both to provide shade and wind protection for campers and to screen the campground so that it does not take on the appearance of a large parking lot. Finally, care should be taken so that the RV's do not dominate the recreational use of the area. In particular, day-use and tent camping areas should not be displaced by recreational vehicle campgrounds. Instead, new campgrounds should be developed for RV's so that a variety of types of recreational activities can be enjoyed along the coast.

Because the sites that meet the planning criteria for RV campgrounds may be limited along some parts of the coastline, recreational vehicle campgrounds should be considered as a preferred alternative to residential development in the use of privately-owned coastal lands. Developing a property as a campground rather than as a private home subdivision will allow a wider spectrum of the public to enjoy the use of the coast while providing a return on the landowner's investment. The high cost of a recreational vehicle is indicative that the owner is able to pay a somewhat higher fee for overnight camping than is traditionally charged at public campgrounds which are subsidized by taxes. This higher fee is particularly appropriate if recreational facilities, laundry services, and other amenities not always found at public campgrounds are provided. Accordingly, a substantial portion of the demand for recreational vehicle campgrounds should be left to be satisfied by private enterprise so that public agencies can concentrate on meeting the demand for tent and primative campgrounds. It is not reasonable or desirable for recreational vehicle campgrounds to be provided only by private enterprise. Many public RV campsites already exist; these areas should not be phased out. Moreover, it has been suggested that

if RV campsites are available only from private enterprise, a virtual monopoly will exist and the fees charged for camping will soar. This has not proven to be the case with motels which are provided only by the private sector; nevertheless, the fee rate charged at public campgrounds may serve as a standard which private campgrounds will strive to meet. Finally, the short-term rental of recreational vehicles from dealers and individual owners should be encouraged so that RV camping is available to families who cannot afford the purchase price of a recreational vehicle.

6. General Day Use

A wide variety of recreational activities that depend more on general public access to the coastline rather than facility improvements are enjoyed along the shore and in the adjacent upland areas. These include nature study, photography, fishing, shellfish gathering, walking for pleasure, attending interpretive programs, and picnicking. All types of shoreline are suitable for one or more of these general activities which can be enjoyed by the public without a large investment of time or money and often without the cultivation of special skills.

Upland areas protected from winds (especially along the northern coast) are needed for the provision of special picnic facilities such as tables, fireplaces, and water and sanitary facilities. The distribution of developed picnic sites (number of tables) in a five-mile wide coastal strip is shown in Table #2; generally, such facilities are more prevalent south of San Francisco. Based on standards developed by the California Department of Parks and Recreation, only 10 percent of the average summer-time demand for picnicking along the coast is met by existing developed picnic sites. Fortunately, a great deal of the demand can be met by informal picnicking in the absence of developed facilities. Where general

day use activities occur in conjunction with beach use activities, or where the activities are tied to a specific shoreline site (e.g. an interpretive facility), parking areas or some other means of transporting people to that area are needed, as are sanitary facilities. In most other cases, public access to the coastline (discussed in Chapter II) is the only requirement.

7. Sightseeing

Sightseeing along the coastline includes visual experiences varying from the passive viewing of the cliffs at Big Sur to watching the sunset while driving along a coastal highway. Since sightseeing often does not involve direct and intensive use of the land surface (e.g. sightseeing from afar) or can be channeled into a relatively small area of intensive use within a much larger natural environment (i.e. scenic roads), the natural resources being viewed need not be publicly owned. Indeed, many activities presently depend to a great deal upon viewing of undeveloped privately-owned lands. While 33 percent of the main coast shoreline is in public parks and recreation areas (see Table #5), only 12 percent of the land area within one-half mile of the shoreline is reserved in public parks and recreation areas (DNOD, 1972). Thus, the continued enjoyment of many passive recreational activities depends primarily upon protecting the attractive character of the privately-owned portion of the coastal zone.

The Appearance and Design Plan Element addresses the issue of how some of these areas can be developed without compromising their attractiveness. However, some areas should be preserved in open space to assure a high quality natural environment. In some cases, areas that are of outstanding visual quality should also be held in open space because

they are used for prime agricultural purposes. Other areas should not be developed because they are geologically unstable, productive wetlands, or flood plains. Many scenic areas are also valuable for recreational purposes. For example, the California Coastline Preservation and Recreation Plan recommends that 287,000 acres of privately-owned coastal lands be acquired because they "contain some of the best of the coast's scenic qualities, the better examples of all biotic communities native to the coast, and a representative display of typical coastal geologic formations" (CCP&RP, p 98). This natural landscape preservation should be pursued through a combined program utilizing both public acquisition and the regulatory process.

Driving for pleasure obviously requires scenic roads. Fortunately much of the coast is already paralleled by roads, and these roads will probably be adequate to satisfy the demand if these roads are not used for heavy through traffic.

The California Department of Transportation has stated that it "will prevent unwarranted intrusion by the State highway system on California's coastline,...will permit only minimal freeway construction along the coastal zone,...[and] will encourage traffic to use inland highways and will give consideration to the construction of only those roads necessary for recreational and business traffic" (State Public Works Bulletin, p. 1). Although this policy will minimize new roads and through traffic, the increased recreational use of the coastal zone will impose a traffic burden on the coastal highways that will conflict with sightseeing use of the roads. Thus, some alternative transportation modes will have to be employed to accommodate the increased movement along the coast and to protect many natural areas from being paved for parking lots.

Agricultural areas, especially those in close proximity to urban areas, constitute another public resource which can function as a supporting recreational facility in addition to their primary function of providing food and fiber. The coastal zone includes some outstanding scenic agricultural lands. The flower fields around Carlsbad offer an almost unique experience of hillsides of color, matched in intensity only by the short-lived and more remote reaches of spring wildflowers in the high desert. Ventura, San Luis Obispo, and Monterey Counties also offer the casual visitor the vista of acre after acre of flowers. More tranquil agricultural vistas can also be pleasureable to the urban dweller, providing a pleasant contrast to more formal parklands. Gently rolling oak woodlands, precise rows of artichokes, checkerboard hillsides of tomatoes, and orchards and ranches offer a needed contrast to the concrete and angular structures of the city. Thus, both the agricultural and recreational needs of our society would be furthered by maintaining these areas in open space.

8. Hiking, Horseback Riding, and Bicycling

Although these activities are not limited to the coastal zone, their enjoyment is greatly enhanced by the attractions and visual amenities found along the coast. Table#2 shows the distribution of hiking and equestrian trails in a five-mile wide coastal strip. The present supply of trails can meet only 46 percent of the demand in the north coast, 14 percent in the central coast and a mere 2 percent in the south coast; along the entire coastline only 11 percent of the present demand can be satisfied by existing trails (PARIS) which are concentrated in the central part of the coast (especially around Big Sur) and are almost non-existent in the southern section of the coast. Moreover,

many of the existing trails are on the landward side of the coastal highway or are separated from the sights and sounds of the ocean by developments. Exclusive bicycle paths are extremely rare, forcing cyclists to share roadways with automobiles if they wish to use and enjoy the coastal resources.

Because of the extreme shortage of coastal trails, the high and growing demand for these trails, and the tremendous potential that exists for developing an integrated trail network along the entire coastline, Chapter VI of this report is devoted to exploring the concept of a State coastal trail system.

9. Education and Research

Utilization of the coastal zone as a natural classroom has become increasingly popular at all levels for formal education as well as for individual enjoyment. Interpretive programs and exhibits are available in many locations to aid the student in obtaining an overview of the natural and historical significance of the coastal area. Public education can aid in changing the detrimental aspects of past user behavior which has resulted in barren intertidal zones at many accessible areas throughout the State. In addition to the educational value of coastal resources, scientific research is conducted in natural coastal environments. In order to carry out these educational and research programs, it is obviously necessary to protect natural areas of the coastal land and marine environments. This need was clearly established in the Coastal Land Environment Plan Element and in two earlier studies: Appendix IX, "Education and Research", of the California Comprehensive Ocean Area Plan; and the California Coastline Preservation and Recreation Plan. Each of these studies recommends the establishment of a system of natural

preserves along the coastline. Because this system has not yet been established and because the reasons for doing so are so compelling, Chapter VI of this report examines the idea in further detail.

10. Commercial Recreation

Any form of recreation provided by private enterprise for profit is considered "commercial recreation". The private sector provides many valuable opportunities related to the activities previously discussed such as sport fishing excursions, camping facilities, pleasure boat berthing, and riding stables. In addition to these, commercial enterprises such as restaurants and shops located along the waterfront offer the public the enjoyment of dining out and shopping in a maritime atmosphere. Marine amusement parks and aquaria are major attractions which offer both entertainment and education, and represent major features which draw increasingly large numbers of vacationists to the coastline.

In many cases, commercial recreational facilities provide a tremendous public asset in that they provide recreational facilities that would not otherwise be available. In other cases these commercial establishments utilize the coastline as a drawing feature and increase their profits by being located along the coastline. In such instances, the commercial enterprises compete with public recreational activities for valuable coastal lands and often win out because the commercial uses force up land values. Moreover, in some cases the high cost of the activities provided in the commercial enterprise excludes a major segment of the population from enjoying coastal resources. Commercial enterprises also generate traffic and congestion which can conflict with public use of the coastal zone. Nevertheless, in many cases commercial recreation represents the only viable alternative to residential development for

coastal landowners. Since residential uses effectively block off the public use of the coastline for all but a few, commercial recreational developments represent a desirable alternative use in the allocation of coastal resources. For example, Fisherman's Village in Marina del Rey has been described as having "gained great popularity and is also one of the few public areas within the marina open to the general tourist, resulting in extraordinarily high parking activity and demand".

Commercial recreational uses of the California coastline have long existed. Many beach communities in southern California have fishing piers, some of which include commercial facilities. Although some of the piers have been allowed to fall into disrepair, they remain an important component of the coastal recreational resources system, as evidenced by the public outcry which was heard when the Santa Monica City Council decided to tear down the city pier. The save-the-pier supporters strongly influenced the city council elections and the newly elected council reversed the decision, saving the pier for the time being. The Santa Monica Pier combines the access for fishing with commercial recreational opportunities for eating, shopping, and entertainment. Last year, 2.5 million visitors used these facilities on the pier.

Somewhat similar in nature to the old municipal piers, amusement parks once were popular along the coastline. They have declined in abundance and, perhaps because they have most often become seedy, there has been little outcry at their loss. Nevertheless, the amusement parks that remain, such as the one at Santa Cruz, remain viable and popular.

More recently, there has been a trend toward developing shopping and eating complexes often centered on a particular "theme". An early and still popular example is the Ports o'Call Village on the San Pedro

waterfront. Located in an area that is accessible only by private automobile, the Ports o'Call Village annually draws three to four million visitors who spend an estimated $8 million. The complex's 2,200 space parking lot is frequently filled to capacity during the vacation season. And while the complex has always drawn a large number of vacationers, with the advent of the energy shortage, more residents of the Los Angeles metropolitan area are exploring close-in recreational resources such as Ports o'Call.

Another type of theme development is the water entertainment complex such as that found in Marineland in Palos Verdes and Sea World in San Diego. Both combine recreational and educational activities with gift shops, restaurants, and motels to create economically viable enterprises. Sea World had 1,760,000 visitors last year while an estimated 700,000 visited Marineland, filling its 2,500 car parking lot on several occasions.

A somewhat unique recreational resource is the Queen Mary which is permanently docked in Long Beach. Last year, almost two million people visited the luxury liner which has been converted into a museum, hotel, restaurant, and shopping complex generating over $1.14 million in gross revenues.

Despite the heavy use of commercial recreation areas such as those cited above, and the continued popularity of waterfront towns like Carmel, Laguna Beach, and Mendocino as vacation destinations, developers tend to favor building single-purpose exclusive residential areas over multi-use commercial recreation areas accessible to the general public. For example, all of the applications that have come before the Coastal Commission for open coastal lands in Orange County have proposed to use these lands for residential uses. Two of the projects (AVCO-Laguna Niguel and Lantern Bay) were proposed for areas desperately lacking

in overnight tourist facilities; both of these sites have the potential of providing a major public beach and commercial uses needed by families from outside the coastal area. The lack of such facilities often deters use of the coast by families living inland and essentially converts a public beach to a semi-private beach. While most persons are attracted to beaches by the sun and the water, many persons, including the elderly and families with small children, need a place for respite from the sun and where food and other commercial services can readily be obtained.

Surprisingly, a lack of water-oriented commercial activities also typifies many heavily urbanized areas. For instance, neither the beach fronting the Venice-Marina peninsula nor the Santa Monica beach area is serviced well by family-oriented commercial facilities. Yet both areas have experienced continued pressure for further residential development with no efforts directed toward introducing multi-use commercial developments to serve the existing and future residents of the area. The Coastal Commission has expressed its desire to see more commercial recreatioanl facilities along the coastline in urban areas and approved the commercial portion of a major project on the San Francisco oceanfront because the project provided some of the much needed commercial facilities needed to service both the regional-scale Golden Gate Park nearby and the beach area. It is hoped that if more commercial facilities and support park areas are provided on the coastline, more families and older people will be attracted from inland areas. Thus, a greater number and diversity of the public could be served if the remaining available coastal lands in urbanized sections of the coast were developed for commercial recreational uses rather than residential uses.

11. Other Activities

Recreational activities by their very nature are varied and diverse. Some are short-lived in popularity; others have long been popular but with only a limited number of people. It is impossible to discuss all of these, but a few which exemplify the general situation are discussed briefly below.

a. Wilderness Activities. Wilderness hiking and camping is limited to a very few spots along the California coastline. Two types of wilderness resources can be identified: (1) wilderness shoreline, essentially a linear wilderness along the shore; and (2) more extensive wilderness areas extending inland as far as the coast ridge. The distribution of each is shown in Table#2. Three of the four north coast wilderness shoreline units are contiguous with wilderness areas but other wilderness shorelines do not have adjoining wilderness areas. All but one wilderness shoreline unit and one wilderness area are part of Federally-owned park or recreation areas. The largest shoreline wilderness area complex is the King Range National Conservation Area in Humboldt County.

Wilderness recreation is one of the fastest-growing recreational pursuits nationwide (BOR,1973), as well as here in California. Wilderness shorelines and coastal wilderness areas are rare along the entire U.S. coastline (excluding Alaska). Preliminary wilderness carrying capacities developed for California's mountain areas (reviewed in Wahrhaftig, et al.), when applied to the available publicly-owned coastal wilderness resource, indicate that sufficient supply exists to satisfy only about one percent of the demand. The extent of present developments prevents any significant acquisition of new areas. The proportion of demand satisfied

might be increased at some loss of wilderness values through limited developments (e.g. developed back country campgrounds at Point Reyes National Seashore).

b. Off-road Vehicles. Dune buggies, dirt motorcycles, and other vehicles capable of travelling across rugged terrain have gained great popularity over the last several years because they open many back country areas to our vehicle-oriented society. Unfortunately, because of their noise and impact on the natural environment they can conflict seriously with other recreational uses of the coastline. The present use of off-road vehicles along the coastline is largely confined to dune buggies using Santa Maria Dunes at Pismo Beach, Ten Mile Beach in Mendocino County, and part of the Bureau of Land Management's King's Range Area in Humboldt County. The Marina Dunes area in Monterey County had been open to vehicular use but has recently been closed. Because of their conflicts with other uses, off-road vehicles may have to be limited to a few very small, highly resilient beach areas that are isolated from other recreation areas.

c. Hang-gliders. Hang-gliders depend upon the existence of high cliff areas with suitable up-drafts such as are found at Dillon Beach. Support facilities needed are limited primarily to parking and restrooms. For safety, hang-gliding should be isolated from other beach activities; when this is not feasible hang-gliders present a potential danger to beach users.

d. Nude Bathing. Nude sunbathing is preferred to partially clothed sunbathing by some people. Because of legal and social restrictions, the opportunities for this type of activity are limited. Secluded beaches where access may be controlled appear to be the best resource for this type of activity. There are reportedly about 50 "free" beaches

along the California coast where anti-nudity laws are not actively enforced. However, one author who intended to write a guidebook abandoned the idea because, he says, "As we got into it and talked to free-beachers, sheriffs, attorneys and townspeople, we realized this treatment would be premature. There are too many tender areas, the subject is still touchy" (Seidenbaum, April 10, 1974). On the other hand, to those who find nudity offensive, access to a "free" beach is as effectively closed off as if it were fenced. Thus, our society does not yet appear to be ready to address the issue of the acceptability of controlled nudism. Therefore, the question of whether certain beaches should be set aside for nude bathing must await the resolution of broader moral and legal issues.

e. Second Homes. The great demand for second homes is certainly a function of recreational enjoyment. In addition to the pleasure derived from living near the sea in a scenic environment, second homes place many people closer to coastal facilities for pursuing other recreational activities. In the sections on Multiple Use Recreation Areas, Upland Support Areas, and Commercial Recreation, some of the conflicts between recreational and residential (primary and secondary) uses of the coast are discussed. Second homes are more in conflict with other forms of recreation than are primary residences because vacation homes are often built in somewhat remote and scenic open areas along the coastline that are suitable for other recreational activities and that add to the visual enjoyment of the coast. Moreover, the development of second home communities in areas served only by low capacity coastal roads can cause overcrowding and congestion of the roads and thereby limit recreational use of the coastline by others who must depend on the same road for access to recreational areas. In some cases, attempts

to resolve this problem by increasing the capacity of the coastal road can spur further residential development by decreasing the travel time to metropolitan areas, can damage the visual quality of the coastal zone by the cutting and filling needed for road expansion, and can deteriorate the natural environment and the quality of recreational experiences by allowing too many people to reach and crowd into coastal recreational areas. Given this situation, it may be necessary to drastically limit the number of second homes along the coast and avoid expanding the coastal highway in order to maintain a quality natural environment for a wide spectrum of recreational activities. These concepts are discussed further in the Transportation and Intensity of Development Plan Elements.

A more direct conflict between second home development and general recreational use of the coast arises because coastal vacation home ownership is generally limited to a small, affluent portion of our society. As explained in Chapter II (Public Access), the exclusive utilization of the coast for private residences can result in the general public being deprived of its right to reach and enjoy the coastline. To avoid sealing off parts of the coast for exclusive residential use while still allowing for the recreational pleasure of living near the sea, hotel-motel lodging and campgrounds for recreational vehicles and other campers should be given priority over second home development. These alternatives would allow a wide segment of the public to enjoy the coast and, if sensitively designed, will result in less potential degradation and alteration of the coastal environment. If second home developments are permitted, multiple family ownerships and rental units should be encouraged; moreover, the feasibility of public development of units that could be rented for short

periods at low cost should be investigated. Such a program would allow coastal vacation living to be enjoyed by more people and by lower income families who cannot afford the high cost of a second home.

CHAPTER II

PUBLIC ACCESS

Introduction

As is the case today, in the past much of California's population clustered along the coastline to enjoy the economic, social, and cultural amenities provided by coastal resources. The general public has historically enjoyed free and unlimited use of the coastal beaches and some adjacent upland areas which the public popularly regarded as a "commons", open to the use of all. Various accounts substantiate this public use of the coastline. During the Spanish period, numerous accounts indicate that California's coastline was treated as a public commons and was regularly used by the citizenry for commerce, recreation and other public purposes. In Up and Down California, 1860-1864, William Brewer describes his travels, nature study, camping experiences, and scientific experimentation along the coastline, and provides accounts of numerous public uses of the beach he encountered along the way. Some fifty years later, J. Smeaton Chase travelled by horseback on beach and coastal trails from Mexico to Oregon and in California Coast Trails he describes the fishing, duck hunting, clamming, and other public activities he saw on his trip. Thus, it is clear that Californians have long enjoyed the use of the coastline for many public recreational activities.

Presently over 13 million people live within an hour's drive of the ocean and by 1980 this population is expected to reach 20 million (Committee on Ocean Resources, p. 161). This population with its increased disposable income, leisure time, and mobility has placed and will continue to place a tremendous demand on the coastal recreational

resources. As mentioned in Chapter I, the available coastline is being used heavily for a variety of recreational activities such as swimming, surfing, fishing, sunbathing, and picnicking, which recently have been recognized as legitimate public uses of tidelands and navigable waters, along with the traditionally recognized uses of navigation, commerce, and fishing. Thus, the recreational use of these resources may require little more than public access to the beach and the adjacent coastline.

This right of public access to the State's navigable waters is guaranteed by the California Constitution. It has long been recognized in California that such navigable waters are held in trust for the public, and include the coastal tidelands up to the mean high tide line. Prior to statehood, under Spanish law the public's right extended to the line of the highest high tide. Unfortunately, this right has been eroded in recent years by coastal development which blocks access not only to the dry beach area and adjacent coastal lands but also to the publicly held tidelands. Public access through privately owned lands is necessary to make full public use of the coastline. This chapter explores the legal and practical issues involved in increasing this access.

Legal Foundation for Public Access

The California Constitution declares that:

> No individual, partnership, or corporation, claiming or possessing the frontage or tidal lands or a harbor, bay, inlet, estuary, or other navigable water in this State, shall be permitted to exclude the right of way to such water whenever it is required for any public purpose, nor to destroy or obstruct the free navigation

> of such water; and the Legislature shall enact such laws as will give the most liberal construction to this provision, so that access to the navigable waters of this State shall always be attainable for the people thereof.
>
> (California Constitution, Article XV, Section 2).

In recognizing this constitutional policy, California courts have determined that recreation is among the "public purposes" intended. In the recent court case of Gion v. City of Santa Cruz, the court considered itself (and presumably the entire judiciary) bound to "observe the strong policy expressed in the Constituion and the statutes of this State of encouraging public use of shoreline recreation areas" and that "...we should encourage public use of shoreline areas wherever that can be done consistently with the Federal Constitution" (Gion, pp. 42-43

In two recent actions the State Legislature has established means for increasing access to tidelands. In 1969, it enacted the McAteer-Petris Act and approved the San Francisco Bay Conservation and Development Plan, which requires that "maximum feasible opportunity for pedestrian access to the waterfront should be included in every new development in the Bay or on the shoreline" (BCDC, p. 29). In addition, the Legislature enacted the Dunlap Act in 1970 which amends the Subdivision Map Act to empower local governments to require the dedication of shoreline access as a condition in the approval of new land subdivisions (Business and Professions Code, Section 11610.5).

In 1972, the general public expressed its desire for the enforcement of public access rights approving Proposition 20, which established the California Coastal Zone Conservation Act. This Act requires that the Coastal Zone Conservation Plan shall include:

> a public access element for maximum visual and physical use and enjoyment of the coastal zone by the public.
>
> (California Public Resources Code, Section 27304)

In addition, the Act states that during the interim permit period:

> all permits shall be subject to reasonable terms and conditions in order to ensure [that] access to publicly owned or used beaches, recreation areas, and natural reserves is increased to the maximum extent possible by appropriate dedication...
>
> (Section 27403)

Thus, California law clearly establishes the public's right to shoreline access. The Dunlap Act, the BCDC Plan, and the Coastal Zone Conservation Act will provide means by which public agencies may require dedication of access by landowners requesting permits for land development.

In addition to methods requiring direct government intervention, the California courts have recognized that public access may be guaranteed through private lands if access through these lands has existed for five years or more. In this situation, court rulings have indicated that a dedication of beach access from the owner to the public has been "implied" and legal public access is created. In the 1972 cases of Gion v. the City of Santa Cruz, and Dietz v. King, the

Supreme Court of California held that there had been an implied dedication of several tracts of beach property and an access road leading to one of the tracts. It is important to note that in the Gion and Dietz cases there was a ruling of implied dedication not only for the access road to the beach but for the dry sand beach area itself.

While the doctrine of implied dedication is extremely useful for gaining beach access and public rights to the dry sand area in certain instances, its usefulness is somewhat limited. For every section of the coast under dispute, a public entity or a member of the public must bring suit against the landowner. Thus, the public may be forced to incur considerable cost and trouble to establish their right to a relatively small portion of the coast. In addition, those bringing suit bear much of the burden of proof in demonstrating that there has been an implied dedication of land to the public. Finally, the strength of the Gion and Dietz decisions has been eroded by subsequent State statutes that provide relatively simple measures by which a coastal landowner can avoid future implied dedication to the public (Civil Code, Sections 813, 1008, 1009).

Two states, Texas and Oregon, have an approach more favorable to the public in questions of public access and use of the coastline. In Texas, the Legislature passed the 1959 Open Beaches Act, which requires the beach landowner to prove that his title specifically excludes the use of the beach as a public common when a member of the public brings an access suit. In Oregon, extremely dramatic and comprehensive

support has been given to public use of the shoreline. The State Supreme Court ruled in the 1969 case of State ex rel. Thornton v. Hay that the public's right to use of the dry sand area of the entire Oregon coast had been established through long custom. This same concept is reflected in the proposed National Open Beaches Act (H.R. 10395), now pending in Congress, which would give the public the right to use the dry sand area of the nation's beaches up to the vegetation line or 200 feet inland.

Thus, there is adequate basis for the introduction of State legislation to guarantee the right of public access to the dry sand areas and immediately adjacent upland coastal areas that Californians have historically enjoyed and that are guaranteed in other coastal states.

Reasons for Loss of Public Access

Despite the legal foundation which seemingly guarantees a right of public access to the entirety of the California coastline, large portions of the coast are inaccessible as described in the following passage from the California Coastline Preservation and Recreation Plan:

> Structures are being developed at the ocean's edge at the expense of both visual and physical access. Views of the ocean along whole segments of the coast are now obliterated by residences, industrial developments, parking lots, campgrounds, commercial establishments, and billboards. Hundreds of miles of the publicly-owned tidelands have been walled off from people by freeways, private clubs, residential and industrial developments, and military ownership. All of these uses severely restrict the shoreline visitor's access to, and use of, the state-owned sovereign lands.(CCP&RP, p.13).

Table #5 catalogs the division of ownership of the California coastline and offshore islands. Of the 1,072 miles of mainland coastline, 164 miles are Federally owned, of which 75 miles are not available for general public use because they are, for the most part, in military

TABLE #5

OWNERSHIP OF T[illegible]ALIFORNIA COASTLINE[a]

A. Total Coastline (miles)

	Main Coastline[b]							Bays[c]	Channel Islands	Grand Total
	Total	North	North Central	Central	South Central	South	S. Diego			
Federal-open to public	88.8	23.9	43.9	21.0	0.0	0.0	0.0	37.2	20.0	146.0
Federal-Military	75.3	3.1	5.5	7.0	29.0	2.6	28.1	2.3	101.0	178.6
State	206.0	45.1	23.4	45.2	40.8	34.8	16.7	[	0.0	[
County	34.3	4.3	4.2	1.7	16.8	7.1	.2	30.7	0.0	299.6
Municipal	28.6	1.5	5.2	5.3	6.4	9.3	.9	]	0.0	]
Private	639.6	209.2	58.0	128.8	151.0	62.5	30.1	78.6	154.0	872.2
Total	1072.6	287.1	140.2	209.0	244.1	116.3	76.0	148.8	275.0	1496.4

B. Sandy Beaches--Swimming (miles)

Federal-open to public	0.0			0.0	0.0	0.0	0.0	0.0	0.0[d]	0.0
Federal-Military	42.2			0.0	18.8	.2	23.2	0.0	34.0	76.2
State	73.2			8.6	20.2	27.7	16.7	[	0.0	[
County	20.6	--	--	.2	16.1	4.1	.2	9.3	0.0	119.5
Municipal	16.4			.5	6.4	8.9	.6	]	0.0	]
Private	138.0			5.7	64.4	43.9	24.0	0.0	17.5	155.5
Total	290.4			15.0	125.9	84.8	64.7	9.3	51.5	351.2

C. Sandy Beaches--Non-swimming (miles)

Federal-open to public	44.7	12.7	26.9	5.1	0.0			3.0		47.7
Federal-Military	8.2	1.3	1.2	5.7	0.0			0.0		8.2
State	64.7	28.8	7.2	15.8	12.9			[		[
County	7.6	4.3	2.4	.9	0.0	--	--	5.0	--	84.5
Municipal	7.2	1.5	4.2	1.5	0.0			]		]
Private	179.0	111.2	14.3	31.3	22.2			30.2		209.2
Total	311.4	159.8	56.2	60.9	35.1			38.2		349.6

a Sources: CDPR (1971) and U.S. Army Corps of Engineers (1971)

b Broken down according to California Coastal Zone Regional Commissions.

c Includes Humboldt, Bodega, Tomales, Drakes Estero, Bolinas, Morro, and Mission Bays.

d Channel Islands beaches assumed to be swimming beaches due to southerly location. No definite information available

reservations. Two hundred six miles are State-owned, 34 miles are county-owned, and 29 miles are owned by local municipalities. The remaining 640 miles, representing 60 percent of the total coastline, are in private ownership. Included in these vast private holdings are over two-thirds of the lands adjacent to the State's sandy beaches. Thus, most of the coastal shoreline type that is most desirable for recreational use and which the public has both a traditional and legal right to use is privately owned. Public access across these lands to the public tidelands is often denied by one or both of the following means. First, the owners often claim superior legal rights to the dry sand areas which, they claim, allow them to prohibit the public from using this area. Even though Californians have historically used much of the dry sand areas as a public commons, private landowners have increasingly claimed a right to deny public use of this beach area.

Secondly, private landowners often prevent public access to the coast by erecting physical barriers. Fences or other construction may block off portions of the shoreline areas for private use. Continuous lines of construction along the roadway may also prevent access to the ocean and coastal lands. Thus, the public may be able to reach the publicly held tidelands which lie adjacent to privately owned land only by long treks along the shoreline. Where barriers exist, the publicly held tidelands often become, in effect, private property. Private control of the public tidelands seems particularly unjust when it is recognized that the entire public, through their taxes, pay for the erosion control structures, fisheries management programs, and other coastal protection programs that benefit these private coastal landowners.

As explained in the previous section, public access across some of this private property can be gained through lawsuits brought under Gion and Dietz decisions, but this is a costly and time-consuming process and each decision will apply only to a specific parcel along the coastline. Through the subdivision and development control process, access can also be gained for the public. Nevertheless, much of the already developed area of the coast and portions which are in private ownership and which are not proposed for new development may remain virtually closed off to the public.

As previously explained, this situation can be partially remedied in areas proposed for development by the requirement of public access to the shoreline as a condition in the approval of permits issued by the Coastal Commission and other regulatory agencies. This access can be guaranteed by requiring the permit applicant either to (1) dedicate fee title or an easement (the right to pass over the land) to a public agency which then takes on the responsibility for maintenance and liability of the area; or (2) record a deed restriction requiring that access be allowed across the property but leaving the responsibility for improvements, maintenance, and liability with the property owner.

Given these powers, requiring access is a relatively simple matter when the developer and the regulatory agency agree on the size and design of the access area and a public agency is willing to accept the dedication. However, the experience of the Coastal Commission and the San Francisco Bay Conservation and Development Commission (BCDC) has shown that complications arise when a public agency cannot be found to accept the dedication (neither the Coastal Commission nor BCDC is empowered to own or receive property), or when the permit applicant is unwilling to provide access through his property.

The attitude of some coastal landowners is typified by the testimony of Warren Haight before the California Assembly Subcommittee on Conservation and Beaches. Speaking of a large second home subdivision developed by his company, he stated:

> We have always resisted unrestricted public access through corridors, and felt this approach would make the Sea Ranch program impossible. We need the continuity of our common areas, we do feel that unrestricted and unpatrolled public access through corridors would cause the despoilment of its natural characteristics, the natural plants that are already in the ground. We've all seen samples of this. Even if they were pedestrian walkways only, they would require parking someplace. They would require restroom facilities. Security is a problem. These are not only expensive, but they destroy beauty. The privacy invasion, we are certain, would scare off buyers. That is one of the main reasons that they have bought lots at the Sea Ranch, and whether fortunately or unfortunately the buyers are the people that make this program possible. The Sea Ranch is dedicated to conservation, and we feel that unrestricted public access is contrary to conservation.

Thus, property owners (and, to a degree, the public agencies that are asked to accept the dedication of public access areas) resist the requirement that public access to the coastline be guaranteed across private lands for four basic reasons: (1) they do not want to assume the liability in the event someone should be injured on the property; (2) they do not want to assume the costs of maintaining the access areas; (3) they believe the security and privacy of the nearby residents will be compromised if public access is permitted through the development; and (4) they contend some areas along the coast are too fragile to be exposed to general public access. Each of these issues is dealt with in the following sections.

1. Liability

Property owners in California may be held liable for injuries that occur on their land (that is, a court may require the owner to pay the injured person for the expenses caused by the injury). Newspapers frequently carry reports of large monetary awards for such injuries. It is therefore easy to understand the concern of property owners, whether private or public, over potential injury on their land.

A landowner's liability will depend on whether his property was designed or maintained in such a way that it was the cause of the injury to the person. Prior to 1968 the owner owed a legal duty to keep his land safe for persons entering the property for business purposes of the owner or occupier. A substantially lesser duty was owed to social guests, trespassers, and those on the land for purposes of their own. In this latter group would be those permitted to cross the property for access to the shoreline. In 1968, in the landmark case of Rowland v. Christian, the California Supreme Court decided that the duty of an owner or occupier was not necessarily reduced because of the status of the person injured and that a high standard of care was owed to all types of users of the property. One of the effects of this decision was a serious concern that landowners who allowed their properties to be used by the public for recreation and access purposes would now be liable for injuries on their land. In response, in 1970 the California legislature enacted laws to limit the liability of landowners.

One of these, Government Code Section 831.4, provides immunity for a public entity, public employee or grantor of an easement to a public entity for any injury caused by the condition of a trail used

for any purpose or an unpaved road (other than a street or highway) used for access to fishing, hiking, camping, riding, water sports, recreational or scenic areas. Thus where a developer (or any property owner) has dedicated an easement and it has been accepted by a public entity, neither the public body nor the grantor of access can be held liable for the injury due to the natural condition of the access way where unimproved, or if improved, for the design and construction if done with proper approval. If the public entity improperly maintains the access way that has been improved or allows through its negligence an unnatural condition to develop on an access way other than a trail or unpaved road, liability might arise.

Also in 1970, the Legislature limited the liability of all landowners in the State when their lands are used for fishing, hunting, camping, water sports, hiking, riding or sightseeing. Civil Code Section 846 provides that an owner of any estate in land owes no duty of care to keep his premises safe for use by others for those purposes stated above. This Section does not limit liability for a willful or malicious failure to guard or warn against a dangerous condition, or for an injury to a person paying a fee for the use of the land, or for persons expressly invited rather than merely permitted to use the land. While this statute offers less complete protection against liability, it clearly protects a large segment of the access ways likely to be dedicated.

Prior to 1970, public entities were made immune from liability for injuries caused by a natural condition of any unimproved public property, including but not limited to any natural condition of any lake, stream, river or beach (California Government Code Section 831.2).

In addition, any public entity was immune from liability for the design of a construction or improvement to public property where the design or plan was approved in advance by the legislative body of the public entity or an employee with the discretionary power to approve such plans (Government Code Section 830.6).

Thus, the concerns of landowners and public bodies over liability appear to be substantially greater than they need be. In addition to the statutes which either limit or immunize those providing and receiving access, liability insurance is available to protect those areas still open to risk. The cost of such insurance varies; however, public agencies and large corporate landholders invariably have comprehensive insurance policies, and the additional risk created by adding or opening an access way may be insignificant. For example, East Bay Regional Park District, which has received dedications from BCDC permit applicants, must pay only an additional $25 per year for each new access way. The cost to individual property owners will depend on the exposure to risk in each individual case, and there are no base rates specifically for access ways (BOR, pp. 32-42). However, the access ways that would create the greatest risk due to large numbers of people using them would probably be adjacent to publicly owned areas where the local public entity would be likely to accept a dedication of an easement or of complete ownership of the property.

In conclusion, the concerns expressed by public entities over liability for injury are not justifiable reasons for refusing a dedication of access. The only area of risk not protected by immunity statutes discussed above appears to be injuries arising out of negligent maintenance. In all likelihood this area will be covered by the

agency's insurance policy. Liability-limiting statutes protect the private landholder permitting access across his land and insurance is available to cover that risk. However, the protection is not as complete as for the public entity and insurance costs would be borne by the individual rather than the public. The Commission should therefore continue its policy of attempting to find a public entity to accept the dedication first, and only where there is no agency willing to do so, require the applicant to preserve access on his own.

2. Maintenance

Concerns over maintenance of shoreline access ways often play a pivotal role in the process of preserving access. On the one hand, the landowner may fear that some members of the public will leave the mark of their presence--litter and damage to the access way itself--and that he will bear the burden of upkeep. On the other hand, the public entity (city, park district or State agency), though prepared to maintain and repair the public property it owns and controls, may not wish to add a particular parcel to its holdings due to cost of maintaining it.

When a public entity has agreed to accept a dedication of an easement or complete ownership of an access way, the landowner's concerns are met; however, when there is no entity to accept the dedication the maintenance responsibilities will fall on the landowner.

In deciding whether to accept a public access dedication, public agencies often consider the cost of maintenance. The cost of maintaining a small parcel not adjacent to any of the other holdings of a public agency may be great because their maintenance crews may be required to travel long distances to the isolated site. In cases like these, where the access way is not likely to attract a major amount of

of traffic and is distant from any publicly maintained beaches or parks, the maintenance costs may be low enough to permit the private landowner to assume the additional costs. The costs of maintenance to the owner will vary, depending on the size of the access way, the nature of the shoreline at the access point, and the amount of traffic on it. In any case the added value of the site for development created by its proximity to the shoreline would seem to justify the cost of preserving the public's ability to reach its coastal areas. Nevertheless, an applicant should not be required to preserve and maintain unless there is no public agency willing to accept the dedication. However, neither the cost of liability insurance nor the cost of maintenance is so great as to preclude requiring the private landowner to assume those costs.

From the foregoing discussion it is clear that occasionally the burden of liability and maintenance of public access ways may fall on a private property owner. While such a burden is not in itself too great for landowners receiving the benefits of developing in the area adjacent to the shoreline, it is an uneven one, in that some applicants (in cases where a public agency is willing to accept the dedication) have no such burden placed upon them.

To resolve this inequity, the Powers, Funding, and Government Organization Plan Element should consider new legislation to create a State agency to serve as a receptacle for public access dedications. The agency could be charged with accepting any dedication offer approved by the Coastal Commission or successor agency, providing maintenance as necessary, and thus bringing the liability for injuries, if any, on the access way under the umbrella of the public entity

immunity Sections discussed above, as well as under State liability insurance coverage. An entirely new department of State government does not appear to be needed. Rather one of the agencies that already own and maintain land for the State (such as the Department of General Services, Parks and Recreation, or the State Lands Division) could be used. The access ways could be held indefinitely or until a State or local agency is prepared to integrate the access way into its park or trail system.

3. Security and Privacy

Landowners sometimes cite their fear of a loss of security (and increase in vandalism, theft, and personal attacks) and reduced privacy as reasons for precluding the general public from new developments. These concerns raise basic, deeply felt questions that pervade our society and are not exclusive to the coastal zone. As such, the problems must be dealt with at their source and cannot be resolved by blocking off miles of the shoreline with exclusive residential developments. If anything, such a practice could aggravate the frustration that may cause some of the problems that are of concern. Moreover, through sensitive design it may often be possible to channel public access to the coastline through ravines and gullies so that there is a physical and visual separation between the public and private areas. Similarly, by clustering the required public access into a single open space of substantial size, the remainder of a development can be closed off to the general public while the public would enjoy the benefit of a major coastal recreational area.

4. Damage to Fragile Areas

Occasionally, permit applicants have suggested that general public access should not be permitted through their properties because the coastal areas they propose to develop are so fragile that unrestricted use by the public would destroy the area's delicate environment. As established in the chapters on Carrying Capacity, and Education and Research, there are many areas along the coastline that are susceptible to irreversible environmental damage if subjected to unrestricted public access. However, in most cases these resources would be subjected to an even greater potential danger by the proposed development nearby. In those few cases where a project can be developed nearby a fragile coastal resource it is particularly important that at least selected members of the public (such as scientists and educators) be provided with access to the coastline so that the continuing impact of the development on the resource can be studied. The control and restriction of access should be regulated by a public agency empowered with the protection of the resource rather than by the private landowner, for there is no assurance that limiting the use of a fragile coastal area to the residents of a private development would protect the area from over-use.

Means of Increasing Public Access

The California Public Resources Code states that:

> It is essential to the health and well-being of all citizens of this State that public access to public natural resources be increased. It is the intent of the Legislature to increase public access to public natural resources.
> (Section 10001)

In addition to the requirement of access as a condition of subdivision or development approval, the State can use the power of

eminent domain which is particularly valuable in areas that are already developed or which will probably not be subdivided or developed for some time. The Code of Civil Procedure defines eminent domain as "the right of the people or government to take private property for public use" (Section 1237). The Code further establishes that landowners whose property is taken for public use must be justly compensated.

The California Constitution provides that "the right of eminent domain is hereby declared to exist in the State to all frontages on the navigable waters of this State" (Article XV, Section 1). The variety of public uses for which the State may exercise this power of eminent domain include:

> Public mooring for watercraft; public parks, including parks and other places covered by water...paths, roads for the use of bicycles, tricycles, motorcycles...public transportation...(Code of Civil Procedure, Section 1238)

Thus, the State may provide almost any type of access way to or along the coastline by use of eminent domain. In order to use eminent domain, a state agency must be specifically empowered to do so with enabling legislation. Unfortunately, the State Department of Parks and Recreation which might be expected to acquire trails and other rights-of-way to and along the coastline is not empowered to use eminent domain to do so.

The major problem with the use of eminent domain as a means of obtaining public access is that the expense of compensating private landowners for public takeover of coastal lands may be quite prohibitive. The State can simply not afford to obtain a significant level of public access to the coast by means of eminent domain privileges. Thus, other means of increasing access should be used where possible. However, it should be noted that in instances where access can be obtained only by

eminent domain, this right should be exercised as soon as possible, before rising land prices further limit the ability of the State to finance coastal access. This point is clearly illustrated by the case of the Point Reyes National Seashore where a delay in making eminent domain purchases allowed the land to increase so much in speculative cost that Congress had to approve supplemental funding to complete the purchase.

Other means for increasing public access could be provided if enabling legislation were passed to slightly expand the State's powers under some of the existing laws. For example, California could follow the lead of Oregon and declare all its dry sand beaches to be common areas. Because of the differences between the Oregon and California Constitutions, special care would have to be taken in drafting the statute to accomplish this goal. However, there is substantial evidence dating from the Spanish period to the present that both the public and many coastal landowners have treated at least the dry sand area of the coastline as public commons open to use by all.

Moreover, the State should aggresively bring suit on behalf of the public to enforce its rights under the implied dedication decisions. Finally, the Coastal Commission and other regulatory agencies could require the payment of a fee in lieu of the dedication of access in the approval of developments where it is determined that access is undersirable (e.g., where the development is along a bluff that does not permit safe beach use or where adequate access exists nearby). The fee could be established by determining the cost of obtaining access at the fair market value across the applicant's property. The fees so raised could be used for acquiring access to and along the coast in previously

developed areas where access is insufficient or in rural areas for the acquisition of a coastal trail right-of-way.

Other, more ambitious methods of guaranteeing maximum access to the coast are examined in the Powers, Funding and Government Organization Plan Element.

CHAPTER III

ECONOMICS OF COASTAL RECREATION

Introduction

Recreational activities along the California coastline have significant economic implications both in the revenue that they generate and in the cost of providing public facilities for these activities. In this chapter, the following economic issues are addressed: (a) the magnitude of spending by coastal recreationists; (b) the effect of recreational spending on employment; (c) the funding available for coastal recreation projects; and (d) equitable means for financing coastal recreation facilities.

Spending by Coastal Recreationists

In the pursuit of their various recreational activities, consumers make expenditures for goods and services such as food, lodging, gasoline, and entertainment. Even as simple an activity as the use of a city beach by neighborhood residents has economic ramifications; the users may purchase picnic food from nearby grocers and beach equipment (such as balls, towels, kites, and frisbees) from local merchants. Recreational activities which require equipment or which necessitate more extensive travel to and from the recreational site encourage even greater expenditures by recreationists. A fisherman, for example, must purchase a fishing pole, bait, and perhaps special clothing. He must travel to the fishing site and may spend money on gas, repair services, and overnight lodging along the way. He must purchase groceries to take on the trip or eat in restaurants. In addition, he may buy souveniers, go to a movie in the evening, or require the services of a doctor. The expenditures of this sports fisherman create employment and income for persons at the recreational site, along the travel route, and in his home town.

Thus, recreational activity can have a significant economic impact[1] by generating income and jobs in the recreation-related business sector.

In addition to the initial jobs and income created, recreational spending generates "multiplier" effects which occur when the primary income recipient such as the coastal merchant or restaurateur spends his money, creating income for a secondary recipient, who in turn spends his money, creating income for a third recipient, and so on. In California this "multiplier" for tourist expenditures is 2.5 (California State Department of Commerce, 1973, p.2). That is, for every ten dollars spent by a tourist, twenty-five dollars of new income is generated in the economy.

Recreational opportunities abound along the California coastline, where the ocean makes many water-related sports possible and enhances enjoyment of such activities as picnicking, sightseeing, and hiking. The attractiveness of the coastal zone for all types of recreational activities draws many visitors whose spending has a significant impact on the economy. Unfortunately, an estimate of the total spending on coastal recreation is not available from other sources; therefore, an attempt has been made to derive a rough "order of magnitude" estimate of expenditures by coastal recreationists using two different methodologies.

The first method, employing data on spending and travel patterns of tourists in California collected by the Economics Research Associates (ERA) for the California Office of Tourism and Visitor Services, results in an

1 The "economic impact of recreation" refers here to what economists call "secondary" or "indirect" impacts of recreational use. The "primary" benefits of the use of any resource are the additions to real income or satisfaction which accrue to the consumer of recreation. For most recreational resource use, addition to satisfaction is the primary benefit. Only in a few instances, as when a family eats the fish brought home by a sports fisherman, does recreational use of a resource bring an addition to the real income of the consumer. The discussion in this report will be confined to the more tangible, "secondary" benefits of recreation, generated by the spending of visitors to recreational facilities.

estimate of about $600 million for spending by coastal recreationists in 1972. The second method results in an estimate of about $560 million, based on data assembled by the California Chamber of Commerce on room tax revenues. In both methods, lack of adequate economic data has made assumptions necessary. Moreover, there are potential flaws in both methods, which are described in detail later. The consensus of the economic experts who have reviewed these two methodologies is that, while no better short-term approaches to the problem could be devised, the estimates of $560 and $600 million were extremely conservative and that actual spending could be twice this high (i.e., well over $1 billion). For example, based on the $4.25 billion contribution to the U.S. gross national product by the recreational boating industry, the California Department of Navigation and Ocean Development has roughly estimated that the industry adds $400 million to the California economy. A major portion of this is probably expended for coastal recreational boating indicating that the $600 million estimate for overall coastal recreation spending is low. Several economists suggested that a long-term research project, involving a detailed investigation and the collection of primary data (which is far beyond the scope of this report) would be a worthwhile means of assessing the actual spending on coastal recreation.

Method No. 1: Estimating Coastal Recreation[1] Spending Using Tourism Data

The most recent detailed data on tourism spending in California was developed in surveys of two different types of information conducted by the Economics Research Associates in 1966 and 1968. The 1968 study concentrated on the spending of out-of-state visitors to California while the 1966 study provides data on spending and travel of California residents. Moreover, the travel pattern data are compiled separately for each of four types of tourist groups making it necessary to deal with each group separately.[2] However, by making two basic assumptions, it has been possible to combine the information in these two studies and update it to 1972. These assumptions are:

1. The spending pattern of each of the tourist groups studied in 1966 and 1968 remained the same in 1972.

2. Tourism spending in the coastal zone as a percentage of total tourism spending in California is equal to pleasure trips made to the coastal zone as a percentage of total pleasure trips in California.

1 In both methodologies, the term, "coastal recreation" is rather narrowly defined and refers only to recreation taking place very close to the shoreline. Attempts have been made, for instance, to exclude visitor spending which is related to urban attractions in San Francisco, Los Angeles, and San Diego. Of course, it is impossible to clearly separate coastally related from non-coastally related spending. Part of the charm of San Francisco's cable cars is the atmosphere created by the proximity of the city to the ocean; conversely, San Francisco's urban attractions make the ocean views especially piquant. Nevertheless, a consistent effort has been made throughout both methodologies to limit activities considered as "coastal recreation" to those closely related to shoreline use.

2 The four groups are: (1) out-of-state air visitors; (2) out-of-state automobile visitors; (3) California residents on one-day pleasure trips; and (4) California residents on overnight vacations.

Based on these assumptions the ERA data have been used in Table #6 to develop an estimate of tourism spending in the coastal zone in 1972 by means of the following method:

1. Using the 1966 and 1968 spending patterns, estimates of spending by each group were made for 1972.

2. Using the beach and coastal area visitation figures[1] for 1966 and 1968, estimates of the amount of coastal visitation were made for 1972.

3. Based on assumption No. 2 above, the amount of money spent in the coastal zone was estimated based on the percentage of pleasure trips to the coastal zone.

4. The figures for both out-of-state visitors and California residents were added to get a total figure for spending in the coastal zone. Figures which have been taken from the ERA studies are shown in parentheses. All other figures have been developed as explained on the basis of the above assumptions.

1 ERA conducted a survey in which out-of-state and California residents recreationists were asked which California attractions they had visited during a certain period. If the respondent named a public or private beach, port, or harbor, or a city such as La Jolla or Carmel, his response was put in the "Beaches and Coastal Areas" category. If the respondent named an activity such as swimming, boating, or fishing, his response was placed in the "Active Recreation" category (ERA, 1966, p. 41).

TABLE #6

1972 SPENDING ON TOURISM IN THE CALIFORNIA COASTAL ZONE
(in millions of dollars)

	1972	1968	1966
Total Spending on Tourism in California	4275		(2900)
Total Spending by Out-Of-State Visitors	(2948)	(2700)	(2000)
Total Spending by Out-Of State Air Visitors	1747	(1600)	
Total Spending by Out-Of-State Auto Visitors	1200	(1100)	
Percent of Visits to Beaches and Coastal Areas - Air Visitors[1]	13.3%	(13.3%)	
Percent of Visits to Beaches and Coastal Areas - Auto Visitors	14.3%	(14.3%)	
Spending by Out-Of-State Air Visitors in the Coastal Zone	232		
Spending by Out-Of-State Auto Visitors in the Coastal Zone	172		
Total Spending by Out-Of-State Visitors in the Coastal Zone	404		
Total Spending by California Residents on Pleasure Trips	1327		(90
Spending by Residents on One-Day Pleasure Trips	369(2)		(250)
Spending by Residents on Overnight Vacations	958		(650)
Percent of Visits to Beaches and Coastal Areas - Residents on one-day trips[3]	28.8%		(28.8%)
Percent of Visits to Beaches and Coastal Areas - Residents on overnight trips	9.2%		(9.2%)
Spending by Residents on One-Day Trips in the Coastal Zone	106		
Spending by Residents on Overnight Trips in the Coastal Zone	88		
Total Spending by Residents on Pleasure Trips to the Coastal Zone	194		
Total Spending by Residents and Out-Of-State Visitors in the Coastal Zone	598		

1 ERA data on travel patterns was formulated in this way: first, members of a certain tourist group, e.g., out-of-state air visitors, were asked which California attractions they had visited; second, the number of total visits to California attractions were taken as 100 percent; and third, the number of total visits to certain attraction (in this case, beaches and coastal areas) was calculated as a percentage of total visits.

2 Some figures have been rounded off.

Potential Flaws in Method No. 1

1. The assumption that spending in the coastal zone as a percentage of total California tourism spending is equal to the number of trips made to the coastal zone as a percentage of total pleasure trips to California attractions is certainly open to question. Coastal visitors probably spend less on their recreation trips than the average recreationist, since many trips to the beach involve only expenditures for gas and a picnic lunch. If coastal visitors do indeed spend less than the average recreationist, then the assumption stated above will lead to an overestimate of spending on coastal recreation.

2. Visits to several popular coastal attractions were not included in the percentages of visits to "beaches and coastal areas" by various groups of tourists, but instead were catagorized as visits to amusement, active recreation, or other types of attractions in the ERA data on which the methodology is based. For example, in ERA's study, Marineland is classified as an amusement attraction and the Golden Gate Bridge is categorized as a public non-scenic sight. Both of these attractions have very high visitation rates. Many visits to the coastal zone were classified under active recreation because the visitor emphasized the opportunity to fish, boat, or swim, instead of the coastal location, as the main reason for the visit. Thus, visits to the coast have been underestimated, perhaps quite significantly.

3. The ERA figures for spending on tourism include only expenditures made while traveling in California. At-home expenditures made by Califor-

nia residents in conjunction with a pleasure trip are not included in the spending figures. Thus, purchases of recreational equipment, food, and repair services are not accounted for. The contribution of at-home expenditures which are made in conjunction with a pleasure trip to the coastal zone is not insignificant to the State's economy. A study by Gruen, Gruen, and Associates on the sport fishing industry estimates that over 44 million dollars was spent in California in 1970 on saltwater sport fishing equipment alone (Gruen and Gruen, p. 71). Since sport fishing equipment and equipment for other recreational activities, such as boating, surfing, and SCUBA diving, is usually purchased prior to departure on a pleasure trip, much of the large recreational expenditure on equipment is not reflected in tourist spending.

Method No. 2: Estimating Coastal Recreation Spending Using Room Tax Revenue Data

Data are available for fiscal year 1969-70 on room tax revenue collections from the California Chamber of Commerce. Using this data, the economic impact of the coastal zone can be estimated by making the following assumption:

Tourism spending in the coastal zone as a percentage of total tourism spending in California is equal to the room tax revenues collected in coastal areas as a percentage of total room tax revenues collected in California.

Based on this assumption an estimate of tourist spending in the coastal zone in 1970 has been made by means of the following method:

1. The amount of room tax revenue collected attributable to coastal recreation has been estimated at $4,278,141 using a percentage

derived from patterns of transportation, land use, and visitation in each municipality (see Table#7).

2. Because not all visitation in the coastal areas is for the purpose of coastal recreation and to ensure a conservative estimate of economic impact of coastal recreation, the total room tax revenues attributable to coastal recreation has been reduced by 25 percent to $3,208,606.

3. The adjusted room tax attributable to coastal recreation ($3,208,606) is 13.4 percent of the total room tax collected for all of California ($24,481,619). This 13.1 percent has been applied to the total dollar value of the tourism industry in California in 1972 as estimated in Method No. 1 ($4,275,000,000) to derive a $560,025,000 estimate of tourism spending in the coastal zone.

Potential Flaws in Method No. 2

1. Attempts to assign a percentage of each city's or county's room tax revenue to coastal recreation are subject to judgment. The true situation was oversimplified in this derivation by using coastal location as the main criterion in determining whether or not part of an area's room tax revenues was attributable to coastal recreation. A small part of the room tax revenues of inland cities may be attributable to travelers to the coast. On the other hand, a small portion of the room tax revenues of even such coastal, recreationally-oriented cities as Carmel may be attributed to business trips or personal affairs. However, the 25 percent reduction of all room tax revenues first attributed to coastal recreation should ensure that any error made is on the conservative side.

2. The assumption that the percentage of total room tax revenues attributable to coastal recreation equals the percentage of total spending

TABLE #7

ROOM TAX REVENUES IN THE CALIFORNIA COASTAL ZONE

Coastal Counties and Cities	Fiscal Year 1969-70 Room Tax Collections	Percent Attributable to Coastal Recreation	Room Tax Attributable to Coastal Recreation
DEL NORTE			
Unincorp Areas	$ 17,417	50%	$ 8,708
Crescent City	26,181	100	26,181
HUMBOLDT			
Unincorp Areas	50,816	50	25,408
Arcata	6,461	100	6,461
Eureka	94,992	100	94,992
Ferndale	No tax	100	0
Trinidad	No tax	100	0
MENDOCINO			
Unincorp Areas	65,943	10	6,594
Fort Bragg	30,545	100	30,545
Point Arena	3,461	100	3,461
SONOMA			
Unincorp Areas	90,486	10	9,049
MARIN			
Unincorp Areas	28,541	10	2,854
SAN FRANCISCO			
San Francisco City	3,900,309	1	39,003
SAN MATEO			
Half Moon Bay	109	100	109
Pacifica	3,973	100	3,973
SANTA CRUZ			
Unincorp Areas	49,036	50	24,518
Capitola	No tax	100	0
Santa Cruz City	115,015	100	115,015
MONTEREY			
Unincorp Areas	207,115	50	103,557
Carmel	189,295	100	189,295
Monterey City	336,799	100	336,799
Pacific Grove	90,131	100	90,131
Sand City	No tax	100	0
Seaside	15,780	100	15,780
SAN LUIS OBISPO			
Unincorp Areas	107,715	50	53,857
Arroyo Grande	1,476	100	1,476
Grover City	873	100	873
Morro Bay	69,968	100	69,968
Pismo Beach	46,509	100	46,509
San Luis Obispo City	123,672	50	61,836

TABLE #7 (continued)

Coastal Counties and Cities	Fiscal Year 1969-70 Room Tax Collections	Percent Attributable to Coastal Recreation	Room Tax Attributable to Coastal Recreation
SANTA BARBARA			
Unincorp Areas	$ 187,462	50%	$ 93,731
Carpinteria	12,348	100	12,348
Santa Barbara City	244,556	100	244,556
Santa Maria	84,845	100	84,845
VENTURA			
Unincorp Areas	3,101	25	775
Oxnard	75,385	100	75,385
Port Hueneme	3,425	100	3,425
San Buenaventura	57,048	100	57,048
LOS ANGELES			
Unincorp Areas	325,000	25	81,250
El Segundo	74,908	0	0
Hermosa Beach	6,476	100	6,476
Long Beach	297,989	100	297,989
Los Angeles City	3,335,628	10	333,563
Manhattan Beach	35,907	100	35,907
Palos Verdes Estates	No tax	100	0
Redondo Beach	63,066	100	63,066
Rolling Hill Estates	No tax	100	0
Santa Monica	202,919	100	202,919
Signal Hill	8,893	0	0
Torrance	48,257	100	48,257
ORANGE			
Unincorp Areas	29,012	50	14,506
Costa Mesa	37,950	50	18,975
Huntington Beach	30,415	100	30,415
Laguna Beach	124,228	100	124,228
Newport Beach	220,015	100	220,015
San Clemente	36,248	100	36,248
San Juan Capistrano	No tax	100	0
Seal Beach	2,935	100	2,935
SAN DIEGO			
Unincorp Areas	237,703	20	47,541
Carlsbad	11,294	100	11,294
Coronado	98,606	100	98,606
Del Mar	10,304	100	10,304
Imperial Beach	9,350	100	9,350
Oceanside	76,293	100	76,293
San Diego City	1,706,778	33	568,939
		TOTAL	$4,278,141

on tourism and recreation attributable to coastal recreationists may be somewhat faulty. Whether this assumption leads to an over- or under-estimate of spending on coastal recreation depends on whether coastal recreationists expend a greater or smaller percentage of their recreational spending on lodging than the average recreationist. On an intuitive basis, it appears that coastal recreationists expend a smaller percentage of their recreational spending on lodging than the average recreationist since many, if not most, coastal visits consist of one-day trips to the beach. Thus, the above assumption would significantly underestimate spending on coastal recreation.

3. Some cities do not collect room tax. Unless cities which do not collect room tax are distributed evenly between coastal and non-coastal areas, the calculations will be in error. However, it appears that most cities which do not collect room tax are small in size and therefore non-representation of these cities in room tax data is not critical.

Again, it must be stressed that the estimates derived by both methodologies are very rough and are likely to be quite conservative. More research is needed before such estimates can be taken as definitive.

Employment Created by Recreation

The recreation and tourism industry creates a significant impact on employment in California. Economics Research Associates estimates that, in 1965, 350,000 jobs in the transportation, retail trade, and service industries were directly attributable to tourism in California (p. 77). In addition to this direct employment, many jobs in construction, agriculture, manufacturing, real estate, and finance are indirectly dependent on tourism. For example, construction workers may build hotels and motels used by coastal recreationists, and workers in a food processing plant may supply restaurants frequented by coastal visitors. ERA estimates

that nearly one million secondary jobs are created by California tourism. This estimate is based on two findings. First, the 350,000 jobs directly dependent on tourism are in a "basic" industry which in economic theory is defined as one which produces goods or services for sale to persons outside its own locale (ERA, 1966, p. 30). Tourism is commonly designated by economists as a basic industry, because it sells goods and services to visitors from other areas who bring "outside" dollars into the local economy. Secondly, based on its examination of California's employment structure, ERA found that the ratio of secondary[1] to basic employment is 2.8 to 1. Thus, in 1965 the total employment directly or indirectly dependent on tourism in California was estimated at almost 1.35 million jobs.

Approximately $2.9 billion was spent in California by residents on pleasure trips and out-of-state visitors in 1966 (ERA, 1966, p. 11). The California Chamber of Commerce estimates that spending on tourism in 1973 was $4.2 billion, making it the third largest industry in the State. Although no figures are available to directly substantiate it, it can be speculated that because spending on tourism in California increased by 45 percent from $2.9 billion to $4.2 billion between 1966 and 1973, so did the jobs related to tourism increase by at least 45 percent from 1.35 million in 1965 to over 2 million in 1973. Similarly, although there are no data available on employment created specifically by recreation in the coastal zone, it is reasonable to assume that because the $598 million spent on tourism in the coastal zone represents 14 percent of the $4.275 billion spent on tourism throughout California in 1972 (see Table #6), at least 14 percent or 280,000 of the 2 million jobs generated

1 "Secondary" employment is in an industry that produces goods and services for sale to the population within the region in which the industry is located.

by tourism in California are directly related to coastal recreational activities.

The type of employment generated by tourism often requires low-skilled or unskilled workers, as found in the service, manufacturing, and agricultural sectors. Thus, the tourism/recreation industry provides jobs for workers that might otherwise have difficulty finding employment. One drawback to employment in the tourism/recreation industry, however, is that it is often seasonal, depending on tourist visitation patterns in the area.

Sources of Funding for Coastal Recreational Projects

The California Coastline and Preservation Plan sums up the need for increased funding for recreation development along the coast: "Acquisition, protection, and development of coastal parks and recreation areas is a mammoth undertaking, requiring a public investment of well over a billion dollars between now and 1980" (CCP&RP, 1971, p. 112).

Funds for development of recreational areas and facilities along the coast are obtained by all levels of government (Federal, State, and local) through a variety of taxes, bonds, grants, and usage fees. The majority of the State and Federal programs are outlined in Table #8; however, a broad overview of the programs of public and private sources reveals that presently available revenues for recreation are not adequate.

Federal

Because of the enactment of the State and Local Fiscal Assistance Act of 1972 (often referred to as the Federal Revenue Sharing Act), Federal funds specifically earmarked for recreational activities have been cut drastically. The major Federal agencies spending or distributing money for recreation along the coast include: the Bureau of Outdoor Recreation,

the National Park Service, the U.S. Forest Service, the Department of Housing and Urban Development, the Bureau of Land Management, and the Army Corps of Engineers. Prior to the recent change in Federal priorities, the Federal government had over 50 grant programs through which funds were channelled into recreational development. The most significant of these was the Federal Land and Water Conservation Fund, which finances both Federal park projects (e.g. Point Reyes National Seashore) and State and local projects. In the period 1970 to 1972, an average of $14 million annually was granted from this fund for recreation projects in California alone (CDPR, 1974, p. 193). Only $2.6 million was allocated for 1974. The California Department of Parks and Recreation sees this reduction as a tremendous threat, with the result being "that all levels of government will fall further behind in their attempts to catch up with the rising demand for outdoor recreation areas and facilities" (CDPR, 1974, p. 193). However, because the primary source of revenue into the Land and Water Conservation Fund is from royalties coming from the extraction of minerals from offshore lands under Federal control, California should press the Federal government to increase the percentage of royalties that go into the Fund, and to earmark these additional funds for coastal recreation projects. The preferential treatment of coastal states in the allocation of such an increase would appear equitable on the basis that these states are being called upon to provide coastal recreation opportunities for the nation as a whole. Revenue sharing was designed to provide local governments with greater flexibility in expending Federal funds within their municipalities. Under this program, the Federal government allocates a certain amount of money to each state, which in turn distributes a set percentage of the total received in local governments. In 1973-74, California received $676 million from the Office of

TABLE #8

State of California, The Resources Agency, Department of Parks and Recreation
1416 Ninth Street, Room 1150, Sacramento, California 95814
Phone (916) 445-4441

STATE AND FEDERAL PARK, RECREATION, AND HISTORIC FINANCIAL ASSISTANCE PROGRAMS TO LOCAL JURISDICTIONS

Partial List – September 1972

STATE PROGRAMS

PROGRAM	PURPOSE	EMPHASIS	PLANNING REQUIREMENTS	PROJECT REQUIREMENTS	BASIS FOR FUNDING	ADMINISTRATIVE AGENCY
Navigation and Ocean Development Financial Aid to Counties	Boating Safety and Law Enforcement	Reduce Accidents and Uniform Enforcement		Comprehensive Boating Safety and Enforcement Program	Reimbursement for accepted program minus personal property tax on boats	Department of Navigation and Ocean Development, 1416 Ninth Street, Sacramento, California 95814
Loans and Grants	Planning and construction loans for marinas; grants for launching facilities	Recreational boating	Engineering and economic feasibility studies	Feasible project	100% grants; 10-year planning loans, 30-year construction loans	
Davis-Grunsky Grants	Acquisition and Development	Water surface for recreation use, plus minimum land and basic facilities	Engineering and economic report	Conformity to California Water Plan	100% grants; $400,000 maximum, additional with Legislative approval	Department of Water Resources 1416 Ninth Street, Sacramento, California 95814
Off-Highway Vehicle Fund	Planning, acquisition, development, construction, maintenance, administration and conservation of trails and areas for the use of off-highway vehicles	Trails and areas for off-highway vehicle use	Compliance with local government plans and statewide plan for trails for recreational motor vehicles	Compliance with criteria established by State Department of Parks and Recreation	75% grant	State Department of Parks and Recreation, 1416 Ninth Street, Sacramento, California 95814
Wildlife Conservation Act of 1947	Acquisition and/or development	Hunting and fishing access, boat ramps, fishing piers, lake construction; wildlife habitat preservation or improvement	Preliminary plans, cost estimates; engineering feasibility; fish or wildlife evaluation	State or regionwide significance; recreation related to wildlife; local agency willing to operate and maintain interest in land	WCB develops and retains proprietary interest in land for long term; provides 50%-100% development costs; local agency maintains project	Wildlife Conservation Board, 1416 Ninth Street, Sacramento, California 95814

FEDERAL PROGRAMS

PROGRAM	PURPOSE	EMPHASIS	PLANNING REQUIREMENTS	PROJECT REQUIREMENTS	BASIS FOR FUNDING	ADMINISTRATIVE AGENCY
Land and Water Conservation Fund	Acquisition and/or development	Meeting regionwide needs	Master plan of park and recreation areas or recreation element of General Plan	Projects must appear on applicant's master plan; must be regional in scope; must conform to State Outdoor Recreation Plan	50% grant; on a reimbursable basis	Bureau of Outdoor Recreation through Department of Parks and Recreation, 1416 Ninth Street, Sacramento, California 95814
Disposal of Surplus Federal Land – Federal Real Property Grants	Development	Park, Recreation and historic areas	Site plan	Review by U.S. Bureau of Outdoor Recreation	Land available at discounts of the fair market value for public recreation purposes. Historic sites – no charge	*Park and Recreation Purposes:* Bureau of Outdoor Recreation, 450 Golden Gate Avenue, San Francisco, California 94102 *Historic Monument and other purposes:* General Services Administration, 450 Golden Gate Avenue, San Francisco, California 94102
National Historic Preservation Act of 1966	Grants for history preservation, acquisition and restoration	Preservation of local, regional and state historical sites and places	State plan	Project must be on the National Register	50% reimbursement of project costs	National Park Service through State Liaison Officer, Department of Parks and Recreation, 1416 9th Street Sacramento, California 95814
Open Space Land Grants; Housing Act of 1961	Acquisition, development, beautification, historical preservation, demolition and relocation	Develop high-use multi-purpose urban parks and recreational areas; shape sound urban growth through use of open space	Comprehensive local planning and areawide (regional) open space planning	Public ownership or control; urban area; generally 15 acres or less	50% grant; 75%-grant for urban shapers; State bond funds may be used as matching	*Regional Office* Department of Housing and Urban Development, 450 Golden Gate Avenue, San Francisco, California 94102 *San Francisco Area Office* One Embarcadero Center, Suite 1600, San Francisco, California 94111 *Los Angeles Area Office* 2500 Wilshire Boulevard Los Angeles, California 90057
Urban Renewal; Neighborhood Development Program; HUD Act of 1968	Acquisition, development; rehabilitation and preservation demolition; relocation	Community development and housing, including urban parks and recreational areas, community facilities	Workable program for community improvement; adopted local general plan	Annual Action Program, based upon comprehensive improvement plan	2/3 grant; 3/4 for communities less than 50,000 pop. or EDA redevelopment area; matching can be non-cash contribution	
701 Comprehensive Planning Assistance Grant; Housing Act of 1964	Comprehensive community management and planning	Improve local management and planning capacity; including park and recreation component	Evidence of local planning capability	Statement of goals and principles	2/3 grant; 1/3 local share; 3/4 grants in EDA or Federally impacted area (local share may be services or cash)	
Neighborhood Facilities Grant; HUD act of 1965	Construct or rehabilitate multi-purpose community centers	Centers in low-income neighborhoods; providing full range of services	Necessary for carrying out program of community services; limited to low and moderate income areas	Consistent with local comprehensive planning	2/3 grant; 3/4 grant in EDA redevelopment area; for land acquisition and building construction	
"701" Planning Grant; Urban Planning Assistance	Comprehensive planning	All planning elements, including recreation	Recreation element may be separate	Statement of goals and principles; size and location	2/3 federal, 1/3 local share; services or cash	HUD through Office of Intergovernmental Management In care of Governor's Office, State Capitol, Sacramento, California 95814
Recreation and Public Purposes Act	Acquisition	Establishing recreation areas on public domain lands	Amount of acreage available will vary from year to year	Public domain land; project proposal from applicant	Public agencies may acquire BLM land at $2.50/acre or lease at $.25/acre/year for 25 yr.	Bureau of Land Management 2800 Cottage Way Sacramento, California 95825
Public Domain Grants for Historic Monuments Act of 1926; PL 69-386 with amendments	Transfer of public domain lands to political subdivisions and non-profit organizations for historic monument purposes	Historic sites only		See "Land Sales Program" of BLM for requirements; only historic site and its features may be included in transfer	Transfer of land title without cost	
Small Watershed Act; PL 566	Planning, acquisition and development	Conservation, recreation, reservoirs and other multiple-purpose areas; basic facilities	Feasibility; technical and construction reports	Small watershed development project	50% grants and loans	U.S. Soil Conservation Service 2020 Milvia Street Berkeley, California 94704 or Department of Conservation Division of Resource Conservation 1416 Ninth Street Sacramento, California 95814
Older Americans Act of 1965, as amended; Title III	Financial support for programs to solve problems of the aged	Staffing and operating multi-purpose activity services	Comprehensive state plan for services to older people	State administer and supervise program; plan approved by the Secretary of HEW	First year – 75% Second year – 60% Third year – 50% (No funds for facility construction)	California Commission on Aging 800 Capitol Mall Sacramento, California 95814
Aging: Older Americans Act of 1965, as amended: Titles IV, V and VI	Training of persons working with aged or preparing for such work	Original research, conducting or expanding training	Comprehensive state plan for services to older people	Originality and need	To 100%; Cost sharing preferred	Regional Office, Administration on Aging, 50 Fulton Street San Francisco, California 94102
Rural Environmental Assistance Program	Conserve and protect the Nation's natural resources	Share costs with farmers/ranchers in performing conservation and pollution abatement measures on the farm		Cost sharing limited to agricultural producers	50-50 cost sharing	U.S.D.A. Agricultural Stabilization and Conservation Service 2020 Milvia Street, Berkeley, California 94704
Neighborhood Youth Corps; Economic Opportunity Act of 1964, Title I, Part B; PL 88-452; PL 89-253	Work training for unemployed youth ages 16-21 from low-income families In-School Summer: 14-21; Out-of-School NYC I: 16-21 NYC II: 16-17 (10% may be 18-19) Enrollees must be members of poor families *In-School* - Potential drop-outs from low-income family *Out-of-School* - Drop-out, unemployed, and from low-income family; *Summer Program:* High school age from low-income family; all must be disadvantaged.	Public service work in the community Earnings and useful work experience for students in low-income families, employability [illegible] to school (for dropouts)	Must be in accord with local Manpower Area Planning Council	Sponsors may be public or private nonprofit agencies; capable of planning, administering, coordinating and evaluating	90% of project cost; matching may be cash or in-kind services	U.S. Department of Labor Manpower Administration 450 Golden Gate Avenue Box 36084, San Francisco, California 94102
Operation Main-Stream; Economic Opportunity Act of 1964, Title IB and IE	Age 32 or older; 40% must be 55 and older. Must be members of poor families	Work training, employment support for chronically unemployed adults with poor employment prospects	Must be in accord with local Manpower Area Planning Council	Sponsors are state and local governments and private nonprofit organizations; preference to rural areas and towns	90% of project cost; matching may be cash or in-kind services	
	Unemployed; priority to older people. Title IE programs are primarily for rural areas with high unemployment rates; must meet disadvantaged criteria					
Economic Development Planning Grants; Public Works and Development Act of 1965	Plans, programs, and facilities to economically deprived areas	Public and private recreation	Environmental Assessment Reviewed by Office Intergovernmental Management, Governor's Office	Start in short time; reduce unemployment; long-term economic development	50-80% grants, based on rate of unemployment; loans made when no alternate source is available	Economic Development Administration, 380 1st Street Oakland, California 94607
Community Action Program; Economic Opportunity Act of 1964; PL 88-452	Help urban and rural communities mobilize their resources to combat poverty	Includes funds for recreation leadership, salaries, training, research and recreation equipment		All components of local anti-poverty programs must be focused on the needs of low-income individuals and families	80% grant; private, non-profit or public agencies eligible	Department of Human Resources Development, Office of Economic Opportunity, 800 Capitol Mall, Sacramento, California 95814

SOURCES OF ADDITIONAL INFORMATION:

1. "Federal Outdoor Recreation Programs", Bureau of Outdoor Recreation, 1970
2. "Federal Assistance in Outdoor Recreation," Bureau of Outdoor Recreation, 450 Golden Gate Avenue, San Francisco, California 94102, lists some 45 Federal recreation assistance programs to State, local agencies, groups and individuals.
3. The National Recreation and Park Association, 1601 North Kent Street, Arlington, Virginia 22209, and its Regional Service Center at 404 Del Webb Center, 2230 Tulare Street, Fresno, California 93721, are additional sources of current assistance programs.

Revenue Sharing under this program, and of this amount $450 million went to local governments (CDPR, 194). The proportion of these monies spent on outdoor recreation is not precisely known; however, present information suggests that the revenue-sharing program will not compensate for the loss of direct recreational funding.

State

On the State level, the major responsibility for administering funds for recreational projects along the coast lies with the Department of Parks and Recreation, the Department of Navigation and Ocean Development, and the Wildlife Conservation Board (within the State Department of Fish and Game). While the budget for the Department of Parks and Recreation has consistently increased over the past five years, the budgets for the Department of Navigation and Ocean Development and the Wildlife Conservation Board have not. In fiscal year 1973-74, the Department of Parks and Recreation spent $50 million alone for the acquisition of new parks and maintenance of existing parks along the coast, compared to $6 million spent by the Department of Navigation and Ocean Development for boating facility developments and $120,000 spent by the Wildlife Conservation Board (CDPR, 1973; WCB, 1973; DNOD, 1974).

In June 1974, the State Park Bond Act of 1974 will be submitted to a vote of the electorate. If approved, it will provide $250 million for recreational projects in California. The Act would allocate $150 million to the State Department of Parks and Recreation and $10 million to the Wildlife Conservation Board of the State Department of Fish and Game. The remaining $90 million would be allocated to counties, cities and local park districts. The Department of Parks and Recreation has proposed that the acquisition of coastal areas be given the highest priority in

the allocation of its portion of the funds and has committed itself to expend at least $34.1 million on the acquisition of coastal properties. Additional funds earmarked for trails, historic acquisition, and general development may be spent along the coastline. Moreover, some of the funds going to local governments and to the Wildlife Conservation Board may be expended for coastal projects (CDPR, 1974, pp. B-1, B-3, and B-7).

Local

Total expenditures by local governments for recreation projects along the coast are especially difficult to assess because coast-related expenditures are not often separated from other expenditures in local budgets. It has been estimated, however, that California cities spend approximately eight percent of their total budget on all recreational projects, and counties spend one percent (CDPR, 1974).

Local agencies face great obstacles in trying to purchase and develop an adequate supply of recreational sites and facilities. Densely populated metropolitan counties are able to generate revenues, but find that nearby recreational sites are very expensive to acquire because of their proximity to urban areas and attractiveness for other uses. Small rural counties face the opposite problem: land is less expensive, but funds for purchase are difficult to come by. One aspect of this problem is addressed in the following sections of this chapter.

Maintaining Coastal Recreational Facilities: Who Should Pay?

The California coastal zone, by virtue of its unique aesthetic qualities and recreational opportunities, attracts many visitors from inland areas. Concern has been expressed that local coastal governments must bear an inequitably large share of the costs of providing coastal

recreational facilities when, in fact, these facilities are often used extensively by residents of other areas. This concern has prompted discussion of alternate means for distributing the financial burden of acquiring and maintaining coastal recreational facilities. Unfortunately, a lack of adequate social and economic data make it impossible to ascertain exactly how inequitable present arrangements for financing these facilities are or exactly how a more equitable arrangement could be achieved. However, a general analysis has been made of the economic effects of coastal recreation on local governments, business interests, and the public in order to derive some broad conclusions concerning equitable financing of coastal recreation.

As described previously, the State of California and the Federal government contribute to the costs of acquisition, development, and maintenance of coastal recreation facilities through various programs. However, in many cases local city and county governments are often responsible for the provision of public sanitary, parking, and access facilities and general maintenance costs at beaches acquired by the State. These costs may be quite significant and impose a heavy financial burden on small cities lacking a large tax base. Accordingly, during the last few decades there has been a running debate as to how the financing (and control) of public beaches should be allocated among city, county, State and Federal agencies.

Coastal Recreational Facilities: Costs and Benefits to Local Governments

As the increasing use of coastal recreational facilities by citizens from throughout California and the U.S. has forced the costs of providing maintenance and public facilities upward, coastal municipalities have increasingly requested higher governmental levels to assume a greater share

of these costs. For example, several cities in Orange County, including Newport Beach, Huntington Beach, and San Clemente, have recently requested the State Legislature to approve funds for beach servicing costs. In other instances, notably in Los Angeles County, there has been a continuing shift in assuming the burden of coastal recreation costs from cities to the county government.

In addition to the direct costs, local governments incur indirect costs from coastal recreation. An influx of visitors to coastal recreational facilities may increase the need for local road building and servicing, policing, fire protection, and litter pick-up in nearby areas and thereby increase expenditures for these services by the local coastal jurisdictions. In addition commercial development stimulated by the presence of coastal recreational facilities will require additional municipal services.

In contrast, coastal recreational facilities may produce some revenues for local coastal government. For instance, parking fees may be collected at public parking facilities provided at the coastal recreation site and rents may be collected from concessionaires at the facility. Visitors to the coastline will pay local taxes on expenditures made while traveling to coastal recreational facilities or on purchases from concessionairs at their destination. In some coastal areas, visitors often stay two or more days; these visitors may spend substantial amounts on lodging, dining, and other items which are taxed by local government.

Coastal recreational facilities may also generate revenues for local governments indirectly. The establishment of a public beach or coastal park may encourage nearby commercial development. Such development will raise assessed property values in that area and increase the local tax base, thereby generating extra revenues for local government. Development

induced by coastal recreational facilities also create jobs and thereby stimulate the local economy and increase the local tax revenues.

The relative magnitude of costs and revenues generated by coastal recreation will, of course, vary from one locality to another. In one coastal area, visitors may commonly stay for several nights, spending lavishly in local restaurants, hotels, and shops. In another area, most visitors may simply drive straight to the beach in the morning, bringing a picnic lunch with them, and drive directly home in the afternoon. Although there has been no comprehensive study of the costs and benefits to local coastal communities in maintaining public recreational areas, the limited economic data available indicates that development and maintenance of coastal recreational facilities can impose a significant net cost on local coastal municipalities. For example, the City of Newport Beach estimated in January 1974 that its operation of the local public beach produced an annual net deficit of $836,777. The city, which provides maintenance, lifeguard services, sanitary and parking facilities, and other services for the beach area, estimated its direct and indirect beach-related expenditures at $1,535,017 and its direct and indirect revenues at $698,240 (City of Newport Beach Marine Safety Department, p. 2); 82 percent of the visitors to Newport Beach are not local residents (City Manager of Newport Beach, p. 2). In 1973, Huntington Beach spent an estimated $1,893,000 on beach-related services, while accruing $615,000 in revenues resulting in a $1,278,000 annual net deficit for the operation of the public beach (Assembly Revenue and Taxation Committee, p. 2). A study prepared in 1970 concluded that the City of Hermosa Beach incurred a net cost of $350,000 in 1969 in providing beach services for inland residents (City Manager of Hermosa Beach, p. 4).

Coastal Recreational Facilities: Costs and Benefits to Local Businesses

In every community, certain businesses cater to the needs of recreationists and tourists; these include hotels, motels, restaurants, sporting-good stores, movie theaters and other amusement attractions. Certain other establishments obtain at least part of their business from recreationists; these include gas stations, retail stores, and transportation companies. These recreation-related businesses may gain tremendous benefits from the provision of public recreational facilities. The acquisition or upgrading of a beach or coastal park is likely to increase the profits of local restaurants, gas stations, lodging places, and retail stores because greater numbers of recreational visitors will be attracted to the community. Many recreation-related businesses, in fact, come in existence only after a new coastal recreational facility opens and begins to draw out-of-town recreationists. The magnitude of spending by tourists and recreationists in California is great, making the tourism/recreation industry the third largest in the State (California Chamber of Commerce). As noted previously, spending by coastal recreationists has been conservatively estimated at $600 million. Thus, the existence of coastal recreational facilities produces profits for many recreation-related businesses along the coast and is vital to the continued existence of many of these businesses.

Development and maintenance of coastal recreational facilities does entail some costs for the recreational sector of the local business community. Along with other taxpayers in the local area, persons involved in recreation-related business must pay higher taxes to support the local government's expenses in maintaining public coastal recreational facilities. In addition, increased commercial development in the area, stimulated by the

presence of coastal recreational facilities, may raise property values, and thus property taxes, for local businessmen.

On the whole, it appears clear that the local recreation-related business community incurs a net financial gain from the presence of coastal recreational facilities. It is not likely that the financial benefits of coastal recreation to the recreation business sector, in the form of increased profits and wage incomes, are outweighed by the costs, in the form of higher business and personal local taxes. Many business establishments in coastal communities, in fact, would not be viable without the presence of coastal recreational facilities in the local area.

Coastal Recreational Facilities: Costs and Benefits to the Local General Public

The effects of coastal recreation facilities on the general local public are somewhat different from the effects on the recreation-related business community with the most significant difference being that the financial benefits of coastal recreation will probably be much smaller for the general community. While visitors to coastal recreational facilities generate increased profits and wage income for members of the recreation business sector, most residents in the city benefit only from the "multiplier" effects of increased prosperity in the recreation sector. The multiplier benefits accruing to each individual in the community will vary, depending on his economic and social position. A school teacher, for instance, may be relatively unaffected by prosperity in the recreation sector compared to a banker or construction worker, who will benefit from increased building and development in the local community.

Besides multiplier effects, the other major benefit of coastal recreational facilities to the local community is that local residents can use these facilities for their own enjoyment. Since many of these persons may have chosen to settle in a coastal community because of its aesthetic and recreational environment, coastal use benefits may be of great importance to the local population.

On the other hand, local residents of a coastal community do incur certain costs because of public recreation facilities. Since the maintenance of beaches is often the responsibility of the coastal municipality, local residents must bear the financial burden of beach upkeep through their local taxes. If the tax base is relatively small, the resulting tax burden on each individual could be significant. In addition, because of the increased commercial development around the recreational site, assessed values may increase in the local area, forcing residents to pay higher property taxes. Finally, local residents may suffer losses from greater traffic congestion, air and water pollution, litter, noise, and crime generated by the presence of visitors to the recreational facilities.

Whether an individual in a local community incurs a net financial loss or gain from the presence of coastal recreational facilities will be highly dependent on such factors as his type of employment and exact place of residence. There is some evidence that residents of coastal municipalities which finance coastal recreational facilities may have a higher tax rate than residents of other areas. In 1968, all Los Angeles County property-owners were assessed .77¢ per $100 valuation for the purpose of financing County operated beaches. In addition to the County tax, property-owners of four cities paid city taxes for the operation of city beaches. The combined city-county rate was .90¢ in Santa Monica; 1.89¢ in Los Angeles City; 3.02¢ in Hermosa Beach; and 7.59¢ in Long Beach (Recreation and Youth

Services Planning Council, p. 36). Thus, the rate of tax paid by Long Beach residents for beach operation was almost ten times as high as that for residents in adjacent county unincorporated areas. Increased tax payments may well outweigh any multiplier benefits a particular individual enjoys from coastal recreational facilities. Whether such a financial loss is mitigated by the personal satisfaction of using nearby beaches and coastal parks will vary from individual to individual. Some residents may find that the enjoyment of visiting coastal recreational facilities is worth the resulting higher tax bill; others may not. In any case, it should be realized that the economic interests of the general local public in a coastal community are likely to be quite different from those of the recreation business sector in that area.

Coastal Recreational Facilities: Costs and Benefits to Inland Residents

The primary benefit of public coastal recreational facilities to inland residents is that such facilities provide the inland visitors with an opportunity to enjoy water-related recreational activities and the aesthetic qualities of the coastal environment. At some public beaches and coastal parks there is a small admission or parking fee; at most there is none. Thus, public coastal recreational facilities make it possible for inland residents to make use of unique coastal resources without paying large admission fees or room rents to private entrepreneurs or without buying oceanfront property.

Inland residents do incur some costs because of coastal recreation. Even a day trip to the beach many involve expenditures on gasoline, groceries, sports equipment, and dining out. On overnight trips to the coast, inland visitors may spend substantial amounts on dining, overnight lodging, amusement attractions, car services, and many other items. In addition

to the direct cost of expenditures made on trips to the coast, inland residents lose the benefits of multiplier effects occurring when they spend their money at home. However, while inland residents do incur costs for food, lodging, and other vacation items on trips to coastal recreational facilities, it is important to note that the money spent by these recreationists does not pay for the acquisition, development, or maintenance of the beaches and coastal parks they visit (except insofar as local taxes collected from these visitors are used for coastal recreational programs). Instead, visitor spending benefits recreation-related business in the local coastal community.

Because many public coastal recreational facilities have been acquired and developed by higher levels of government, a small portion of most inland residents' tax bill is used to provide coastal recreation sites. Nevertheless, the tax burden of maintaining facilities for coastal recreation does not appear to always be equitably distributed among municipal, county, State, and Federal taxpayers. As noted previously, there was a large disparity between 1963 tax assessments for beach operations in Los Angeles County and four coastal cities within the county despite the fact that county residents comprised a large percentage of visitors to city beaches (Recreation and Youth Services Council, p. 16). This year, representatives of several coastal cities testified before the State Assembly Revenue and Taxation Committee that, although they received no financial help from the State for beach operation, a large percentage of visitors to their city were not county residents. It was stated that more than 50 percent of the visitors to Orange County beaches are from outside Orange County. The City Manager of Santa Cruz testified that 82 percent of the attendance at the Santa Cruz beaches came from out-of-county visitors

(Assembly Revenue and Taxation Committee, p. 36, 62). In many cases, therefore, adjustments in the financial contributions of each level of government to particular coastal recreational facilities appear to be necessary if such contributions are to adequately reflect the geographical distribution of visitors to these facilities.

Equitable Distribution of the Costs of Providing and Maintaining Coastal Recreational Facilities

The preceding discussion has been quite general; accordingly, the conclusions reached here on equitable financing of coastal recreation are generic, not specific. It should be emphasized that the costs and benefits of public coastal recreational facilities actually experienced by individuals in coastal and inland communities will be highly dependent on varying social, economic, and environmental factors; nevertheless, it can be concluded that because some local governments finance the maintenance of recreational facilities along the coast through local taxes, the taxpayers in these coastal communities bear much of the financial burden of providing coastal recreational facilities for the population as a whole. Moreover, although inland visitors to coastal communities spend money in these communities, thereby benefiting local recreation-related businesses these residents often do not bear an equitable share of the taxes required to maintain the public recreational facilities.

The preceding analysis can give some direction to future planning for the California coastal zone. First, because inland residents make use of coastal recreational facilities, county, regional, and California State government should bear part of the burden of maintaining coastal recreational facilities. An equitable sharing of the cost burden for a

particular facility should take into account patterns of coastal visitation, as well as social, economic, and environmental characteristics in the area. In this regard, Assembly Bill 3611 (Assemblyman Burke) would establish the Public Beach Fund and would appropriate $3 million in State funds to it for apportionment to cities and counties which must bear the excess costs of administering and providing public beach-related services because at least 50 percent of the use of the beaches is by persons who reside outside the city or county. This legislation would serve to resolve many of the problems of inequity outlined above and should be supported.

CHAPTER IV

RECREATIONAL CARRYING CAPACITY

Introduction

"The paradox of recreation is that as increasing numbers of people learn to appreciate nature and seek enjoyment in the outdoors, they tend to destroy the very values that attracted them" (Chubb and Ashton, p. 8). Although this statement concerns recreation in general, it describes very well the specific problem of the "recreational carrying capacity" of California's coastal zone. As California's already large population continues to grow, more and more people will want to use the coastline to fulfill their recreational needs and desires. This increased public use will inevitably result in the overcrowding of some areas to the point where "the resource itself will be abused or destroyed beyond its power to provide a satisfactory recreation experience, and the congestion of human beings...will reduce the recreation experience to a nominal or non-existing state" (Alldredge, p. 21). These undesirable effects are already present along some parts of the California coastline as exemplified by the skindiver from San Diego who has to travel further each year to find a high quality marine environment to dive in, the surfer in Orange County who is forced to pull out of a wave crowded with swimmers, or the San Francisco family which has planned a picnic on the beach, but cannot find a parking place.

The widespread deterioration of recreation areas has already instigated study and research on the subject of recreational carrying capacity. Unfortunately, the subject does not readily lend itself to objective analysis because of the complex array of factors that affect the quality of recreational resources. Only now is enough data being

accumulated to make any progress in understanding the complex interactions of those variables critical to determining recreational carrying capacity (Sudia and Simpson, p. 27).

To date, very little definitive study has been conducted on the carrying capacity of coastal zone recreational areas. Most of the study and research has focused on national parks and wilderness areas located in mountainous terrains. Undoubtedly, much of what has been learned in these studies can be applied to the coastal zone; however, the coastal zone possesses certain unique environmental characteristics that do not exist inland. For the purpose of ensuring that these unique characteristics are not degraded or destroyed, studies directed specifically toward the recreational carrying capacity of the coastal zone are needed.

Definition of "Recreational Carrying Capacity"

The origins of carrying capacity theory are found in the fields of wildlife and rangeland management, agriculture and forestry where "carrying capacity is intimately tied with the principle of the sustained yield of a renewable resource" (Payot, p. 4). The same theory can be applied to recreational carrying capacity because "as in the case of grazing and forestry, there is some limit beyond which use cannot increase without serious deterioration in the quality of the quality of the recreation experience--and frequently, serious physical deterioration of the area as well" (Clawson and Knetsch, p. 176). Because the study of recreational carrying capacity is relatively new and one that has been elusive to universal understanding, almost every article dealing with the topic devotes much attention to definition and redefinition in an attempt to more precisely identify the critical aspects of the subject. For a definition of recreational carrying capacity to be useful and complete,

it must cover all aspects of capacity--physical, ecological, psychological, and social (Chubb and Ashton, p. 50) which the following seems to do: "The recreational carrying capacity is the character of use that can be supported over a specified time by an area developed at a certain level without causing excessive damage to either the physical environment or experience of the visitor" (Lime and Stankey, p. 175).

Components of Recreational Carrying Capacity.

To adequately explain and describe recreational carrying capacity, attention must be devoted not only to the components of recreational carrying capacity, but also their interactions. Most authorities agree that there are basically three components of recreational carrying capacity. Although the exact terminology may differ, the three areas can generally be identified as: (1) physical, ecological, or biological capacity; (2) social, psychological, or visitor capacity; and (3) designed or facility capacity (Chubb and Ashton, p. 50; Alldredge, p. 22; Tribe, p. 2; and Lime and Stankey, p. 175). Each of these components and their interaction is described below.

1. Physical Capacity

The physical capacity of a recreation area is defined as being that "amount and character of use beyond which the physical resource will be unacceptably altered" (Tribe, p. 2). Generally, the physical, ecological, or biological carrying capacity of a recreation area is concerned with the change in the natural environment brought about by both natural processes and human impacts (Stankey, p. 29), It should be noted that the introduction of any activity, recreational or otherwise, to an ecosystem will alter it in some manner. Such alteration is not necessarily undesirable but recreation use beyond a certain level can destroy the natural qualities

of an area (Tribe, p. 2). It is generally accepted that unrestricted recreational use of popular or fragile sites will eventually result in the degradation of the desirable environmental characteristics of the site (Lime and Stankey, p. 178).

2. Social Capacity

Social, sociological, psychological, or visitor capacity deals with the "quality" of the recreational experience as perceived by the user, and relates to the effect of such factors as overcrowding and the condition of physical resources on the quality of user satisfaction. In other words, sociological considerations relate to the effects of people on people, and the natural environment on people (Tribe, p. 2). This component of recreational carrying capacity often employs subjective terms such as "user degradation", for the study of social capacity is somewhat subjective being concerned as it is with the inner feelings of the recreationist as he experiences the recreational activity and area. Such concerns will inevitably cover a wide range of individual human behavior and emotion in that "all recreationists do not perceive their environment in the same way; what is a quality recreational experience to one may be entirely undesirable to another" (Lime and Stankey, p. 176).

3. Designed Capacity

Designed capacity involves "the degradation of the developed facilities (parking, restrooms, picnic areas) as much as the disturbance of the surrounding area, that leads to degraded visitation" (Sudia and Simpson, p. 30). Stated simply, the definition of designed capacity is the maximum number of people which the man-made facilities can handle without being degraded (Alldredge, p. 22). These facilities include transportation access to the recreational area as well as facilities at the site.

4. Interaction Between Components

From the above it is clear that each recreation site can withstand only so much use and abuse, that the user can tolerate only so much congestion, and that the facilities can accommodate only so many visitors; however, it must be emphasized that none of these components is totally independent of the others. In respect to the overall recreational carrying capacity of a site, all are interdependent, and it is the interaction of these interdependent variables that makes the understanding and quantification of recreational carrying capacity so difficult.

For most recreational resources, and especially those of the coastal zone, the physical capacity is the absolute capacity, and under no circumstances should recreational use be permitted to exceed it. Although in some cases damage to the natural resource will not affect the user's satisfaction, normally the physical capacity should be considered as the upper limit in all planning for recreation areas (Alldredge, p. 22). However, it is entirely possible that either the social or designed capacity, or both, could be exceeded with no physical damage resulting to the natural resources of the area. In such situations, the controlling or limiting capacity should be that capacity which has the lowest tolerance (Alldredge, p. 22). In other words, "if the level of use at which visitor satisfaction is excessively diminished is reached before unacceptable physical damage occurs, social carrying capacity is controlling" (Tribe, p. 3). Likewise, the designed capacity could also be a controlling component as in a situation where there might be so few boat launching ramps at a marina that it would be impossible to launch enough boats in a day to exceed either the physical or social carrying capacity of the marina itself (Tribe, p. 3). Normally, the different components as they affect recreational quality are not often so easily isolated and examined as

they are in theoretical discussions. Usually, it is a combination of the different capacities, in varying degrees, that establishes the recreational carrying capacity of an area.

Determinants of Recreational Carrying Capacity

In developing an understanding of the overall recreational carrying capacity of a particular recreational facility, several determinants have been found to be key issues that come into play in determining how much use an area can be expected to get and how much use it should get. These critical determinants are the site characteristics of: (1) climate; (2) time; (3) location; (4) water; (5) access and (6) the human values which are part of the recreational experience. Each of these is described briefly below.

1. Climate

Climatic differences, especially those regional in nature, are an important consideration in attempting to assess the carrying capacity of recreational areas located in the coastal zone. These differences have a decided impact upon the recreational use of California's coastline; not only in terms of length of activity seasons, but also in what regions these activities can be enjoyed. For example, ocean swimming is enjoyed primarily in the summer months, and in the southern section of the State (California Dept. of Parks and Recreation, CORRP, p. 64).

2. Time

In one respect, the consideration of the time variable is closely related to that of climate in that the length of the use season and the consequent time period available for site recovery is determined by the local climate. Another characteristic of the time variable is that some activities, such as swimming, picnicking and sightseeing are of relatively short duration; therefore, several parties can normally use the same area

during a day (Tribe, p. 3). "Peaking" (in which large numbers of people want to use the same site at the same time as, for example, at a picnic area on the Fourth of July and thus cause a "peak" demand) is the time factor that causes managers of coastal recreation areas the most problems. "Nearly all outdoor recreation activities are subject to extreme peaks of use at certain times and to a very low level of use at other times. One consequence of this extreme peaking of demand is that natural resources, capital investments, and, to a large extent, management and other personnel, are inefficiently utilized" (Clawson and Knetsch, p. 170).

3. Location

Beyond the obvious locational differences relating to length of activity seasons, proximity to a major urban center is a locational factor that can greatly affect the carrying capacity of a recreational area. A recreation area that is located within an hour's travel time of a major urban center will, in all probability, experience a great deal more use than areas that are located two or three hours away (Calif. Dept. of Parks and Recreation, CORRP, p. 19-21). The locational factor is related to the number of facilities available in an area, for the use of a recreational facility close to an urban population can be reduced if a number of similar facilities exist nearby. Thus, an inadequate supply in respect to total recreational supply, or range of recreational opportunities offered can have a definite effect on the carrying capacity of a recreation area (Lime and Stankey, p. 182).

4. Water

One of the most critical factors affecting the use of a recreational facility is the availability of water. Normally, this will not be a

determining factor in the carrying capacity of coastal recreational facilities. However, for activities such as small boat sailing and berthing, protected waterways and basins are required. Thus, the effective carrying capacity of a marina can be reached when there is congestion in the channels to the sea or conflicts between small sailing vessels and power craft in the basins. Beyond this, the most critical factors of ocean water are its quality and safety.

5. Access

It is doubtful that an area with limited or no access will experience any recreational carrying capacity problems. In many instances, access must be provided, or improved so that the public can take advantage of coastal recreational opportunities. It is important to recognize, however, "that providing access not only effectively increases capacity; it can also quickly alter the type of recreational opportunity offered" (Lime and Stankey, p. 179). Therefore, it is imperative that adequate forethought be given to the provision of access so that it corresponds with desired recreational objectives.

6. Human Values

The determination of "recreational carrying capacity ultimately requires the consideration of human values" (Lime and Stankey, p. 82). Because of the subjectivity of these values and the wide range of public recreational tastes, it is essential that managers carry on an active dialogue with a variety of publics. By following such a course, management objectives and capacity guidelines will be more viable and relate better to the recreational needs and desires of the public (Lime and Stankey, p. 182).

Means for Avoiding Exceeding Carrying Capacity of a Recreational Facility

When it has been determined that recreation use is approaching the carrying capacity of a particular site, or it is apparent that the deterioration is beginning to exceed the site's natural ability to repair itself, two basic alternatives exist. "Either the carrying capacity must be increased so that more use can be accommodated, or management measures must be taken to regulate the amount of, or pattern of use. Although things can often be done to increase carrying capacity, there is a limit to the amount of use that is acceptable under any given management objectives. When this limit is reached, some controls on use will become necessary" (Tribe, p. 5). Unfortunately, many times the need for management controls is recognized too late and the deterioration of the site is not easily arrested, let alone remedied.

The most serious problems in managing for recreational carrying capacity inevitably arise not from whether recreation use should be limited, but in what manner it should be limited (Clawson & Knetsch, p. 177). The main reason these problems arise is that implicit to all management techniques for treating recreational carrying capacity problems is a trade off between a loss in the user's freedom of choice, and a gain in the overall ability of the site in meeting visitor demands (Lime and Stankey, p. 179). However, benefits to be gained by controls generally outweigh the costs and the perpetuation of a range of quality recreational opportunities in an area can be assured (Lime and Stankey, p. 179). In an effort to best provide for user satisfaction, it must be recognized that user tastes reflect societal trends and therefore are not static. Thus, managing agencies should constantly strive to establish

and maintain goals that are flexible and can respond to changes in the recreational desires of the public (Chubb & Ashton, p. 26). Several techniques available to recreation planners and managers for controlling recreation use so that it does not exceed the determined carrying capacity are discussed below.

1. Site Design

If methods to assist the natural recovery process, such as irrigation, fertilization, reseeding, or conversion to more hardy species prove insufficient, the design of the recreational site can be changed in imaginative ways to either increase the carrying capacity, or control use so that the carrying capacity is not exceeded (Chubb & Ashton, p. 9). For example, depending on the particular need, support or access facilities such as trails, roads, parking, and boat launching ramps could either be expanded to permit more use, relocated to redistribute use, or limited to restrict use (Tribe, p. 2). Technical and engineering knowledge can be applied to increase the carrying capacity of coastal recreational sites by building groins, breakwater structures, or perched beaches to increase or conserve beach areas. Similarly, artificial reefs have been proposed to improve wave quality for surfing, and enrich the marine habitat for fishing and diving. "It should be emphasized, however, that the construction of additional beach or shoreline area requires careful study with respect to the influence such new areas may have on the nearshore physical and ecological processes" (City of San Diego, pp. 57-60).

2. Management of People

This management technique is used primarily to spread the use of recreational facilities over the year to avoid the problems caused by

"peaking" of use. The most effective strategy of combating problems of peaking is to combine effective restraints on use at peak times and inducements to use at off-peak times (Clawson & Knetsch, p. 172). The development of use at off-peak periods is one of the most promising means of maintaining recreation quality, and at the same time increasing output (Clawson & Knetsch, p. 170). However, off-peak use is not easily encouraged as the peaking of recreation demand is closely related to the timing of available leisure, weather and climatic conditions, and traditional use patterns.

Closely related to developing use at off-peak periods is channeling use during peak periods to alternate locations that offer the same basic experience. Quite often while one recreation facility is filled to capacity, other facilities offering the same basic experience are far below capacity. Of particular significance to redirecting the peak use of coastal recreational areas is the development of inland alternatives; for example, fishing, swimming, and camping in and around reservoirs. Of course inland alternatives would not be acceptable to all users, but they do have the potential of relieving, to some degree, peak pressures on coastal recreational areas. A key determinant in such management is access to the recreational area. A new road to a beach or campground can cause severe overcrowding of the recreational area long before the road capacity is reached. Therefore, recreational planning and the protection of coastal resources must be integrated into transportation planning decisions.

On a long-range basis all public and private recreational facilities in California should be tied into a centralized reservation and use monitoring system. Such a system would be a natural expansion of the system presently used by the California Department of Parks and Recreation for making reservations at State Park units through Ticketron outlets. The concept of a reservation system is usually seen as a very negative harbinger of a 1984-type society. The idea of having to reserve space for recreation seems the antithesis of what a spontaneous, relaxing recreation experience should be. Yet, as many people have found, the assurance that a campsite will be available at the end of a day's drive can make the day much more relaxing. On a more short-term basis, it is not certain how many people end up using, and not fully enjoying, an overcrowded beach simply because they were tired of driving and knew of nowhere else to go. A monitoring system would allow a family planning to go to the beach to call before leaving home to find out whether their favorite beach was filling up faster than normally, and to get suggestions for other picnic and swimming sites within the same travel distance of their home.

Studies on the advantages of reservation systems have suggested that a portion of the facility capacity be left to be filled on a first-come-first-served basis. This will allow people who are not acquainted with the reservation system to have some chance of using the facility and will accommodate those who choose the freedom of a totally spontaneous life-style by not imposing that their recreational activities be planned ahead. These ideas should be incorporated into an overall reservation-monitoring system to ensure that it not be exclusionary of any elements of our society. Thus, despite its initially negative

connotations, a reservation system can be designed to minimize its negative features. Moreover, such a system could go far toward resolving one of the critical problems that recreation managers now have—it is hard to turn someone away when you have nowhere else to send them. Too often peak crowds are permitted to exceed carrying capacities because park operators are not certain that the situation will be any better down the road. A reservation-monitoring system would resolve this difficulty and thereby allow park managers to be more firm about holding allowable use levels below capacity because they could be certain that their position would not destroy a family outing.

The total system would take several years to be operational and would always be plagued by newly opened campgrounds that are not covered by the system or delays in the completion of facilities that were reserved far in advance. Nevertheless, even with these flaws the concept is workable and, as a first step toward it, efforts should be made to pull together the existing reservation systems used for State and Federal parklands, and later to expand the combined system to include county and local parks and private recreational facilities.

3. Education and Communication

A fundamental goal of recreation managers is to raise the aspirations of the recreationist for a higher quality recreation experience, so that public attitudes will not become less discriminating as urban densities increase and population grows (Stankey, p. 113). The methods of achieving this goal are through public information programs that educate and management programs that regulate use in order to provide an authentic environment within which a satisfactory recreational experience can occur

(Sudia & Simpson, p. 28). Stringent management programs that insure the maintenance of a quality recreation experience are very important, for "to reduce the rigorousness of guidelines for the management recreational areas will not only result in the eventual deterioration of the unique environmental qualities these areas possess, but will also result in the loss of a special kind of experience for which there is little substitute" (Stankey, p. 114).

One means to improve the distribution of recreational pressure and to effectively improve access to the coast is through the preparation of atlases that locate access ways and describe recreational facilities such as the Atlas of Beaches in Los Angeles County prepared by the University of Southern California. Media bulletins on the use intensity of various facilities could also be used to distribute recreational pressure by informing the public of overutilized and underutilized areas.

4. Variety of Recreational Opportunity

The wide range of individual recreational preferences has been mentioned several times previously. Because of these varied recreational tastes held by the public, recreation areas should not be homogeneous. At this time, no scientific method exists whereby an appropriate mix between recreational opportunities and user desires has been established. Thus, the best strategy to match visitor needs with opportunities, and to provide for maximum user satisfaction, is to make available a full range of recreational opportunities rather than trying to develop recreation areas for the average user (Lime and Stankey, p. 176).

As an ideal goal, the concept of providing a wide variety of recreational opportunities seems reasonable and within reach, given the diversity of the California coastal zone. However, in order to be effective the concept must be applied uniformly so that its benefits are available to all recreationists. The basic logic behind the idea is that if an activity such as hang-gliding, surfing, or dune-buggying is given priority at some recreation areas, then it can justifiably be excluded at other areas where it would conflict with other activities such as sunbathing, swimming, or beachcombing, or where it would result in serious environmental damage. Problems result when a specific recreational activity is not permitted but neither is an alternative location available for its enjoyment. In some cases these alternatives may exist but knowledge of them is not widespread. This can be resolved through the reservation-monitoring system and education and communications techniques discussed previously. The alternative locations must also be within easy traveling distance of the population that wants to enjoy the particular recreational activity. The dune-buggy enthusiasts living in southern California obviously cannot have their day-use demands satisfied by a recreational vehicle recreation area over a day's drive away in northern California. Yet some activities cannot be accommodated because of geographic conditions. Because of the heavy urbanization of the southern California coast, the Santa Monica Mountains and Camp Pendleton are the only areas where a semi-wilderness experience can be enjoyed. In contrast, the intensive and exciting urban beach/amusement park atmosphere is not found north of Santa Cruz, but backpacking and primitive camping can be enjoyed along much of the northern California coast.

To synthesize these recreational needs and environmental constraints into a comprehensive plan for providing a wide variety of recreational opportunities along the coast, the coastline near the metropolitan San Diego, Los Angeles, and San Francisco areas should be used to accommodate intensive recreational activities and heavy use so that the rural coastal areas of central and northern California can be protected from heavy use for less intensive activities. To be successful this approach will require that a large proportion of the public money used for new recreation areas be expended in populous southern California. Moreover, as discussed in the next section (General Access), the road system along the rural portions of the coast should not be expanded to increase its capacity; this will further the goal of protecting this area for low-intensity recreation. Within this general concept every available opportunity should be pursued to provide low-intensity recreational facilities within a short travel time of California metropolitan areas. Areas within the Santa Monica Mountains, Camp Pendleton, and along the San Mateo, Marin, and Sonoma County coastlines should be protected for low-intensity recreation now while the opportunity still exists to preserve them. Nevertheless, it should be expected that beaches along the southern California coastline will be exposed to extremely heavy use. As explained in a subsequent section of this chapter, beaches are extremely tolerant of heavy use; therefore, this use should be accommodated with adequate parking, rest rooms, food facilities, and shuttle bus systems to handle as many people as possible.

5. General Access

Throughout the previous discussion on carrying capacity, the emphasis has been on the capacity of specific recreational sites and

controlling use through techniques employed by the managers of the sites. In a broader sense, the capacity of an individual site is related to the general environment in which it is situated and the use level of the site is determined by the general access to the recreational facility. The quality of this access has, in turn, a profound effect on the quality of the general environmental character at an area much larger than the recreation site itself.

Much of the California coastline remains in a virtually unspoiled state where tide pools are still full of sealife, where beachcombers can still make exotic discoveries in the sand, and where there is generally little danger of exceeding the physical carrying capacity of recreation areas because the normal use level is quite low. These conditions exist not because the coast is not attractive for recreational use but rather because long portions of the central and northern California coastline are far from the major urban population centers and can be reached only over narrow, winding California Route 1. Despite the legendary Sunday afternoon traffic jams when this road is used to full capacity, driving Route 1 is still an enjoyable recreation experience in itself which enriches the quality of the recreational areas along the coast. Yet, because Route 1 is a low-capacity, low-speed road, it serves as the controlling "designed capacity" for many of the recreational facilities that can be reached only by traveling over this coast road. Therefore, this element of general access to the recreation site must become an integral factor in the management program for ensuring that the site is not overused. If this element is not taken into account and the road capacity is greatly increased, the additional crowds reaching the park gates will simply have to be controlled through other means if the coastal environment is to be protected.

The limited access along much of the coast has another direct effect on recreational carrying capacity: it plays a large part in determining the social or psychological capacity which is based on the "quality" of the recreation experience. The sense of solitude that is enjoyed at many isolated California beaches comes not so much from the quality of the beach itself as from the towering open headlands which cradle the beach. And the headlands remain as open space largely because they too are kept far from the pressures of urbanization by the limited capacity of Route 1. Thus, if Route 1 were "improved" and its capacity increased, more people would be able to reach many coastal recreation areas in less time; however, that benefit could be far outweighed by a need for more internal controls at each recreational area to prevent overuse and the deterioration of the general coastal environment by new development. Moreover, the increase in the number of inland residents who got to use coastal recreation areas could be limited because the new residents in the coastal zone would also be using the recreational areas and would be using up some of the increased road capacity for their business, recreational, and general travel.

The increasing number of second-home developments along the coastline is greatly adding to traffic load on Route 1. This cuts into general recreational use of the road and lends support to the cause of "improving" the roadway. As explained above, this solution might very well aggravate the problem by spurring on more development which further adds to the road use and deteriorates the scenic open spaces. The overall solution should be to recognize that the quality of the recreation experience enjoyed along the isolated portions of the coast comes from that isolation and that the limited capacity of the coastal road

is the primary component which allows for this isolation. To maintain this highly desirable recreational resource, it is imperative that the overall capacity of the rural sections of Route 1 not be increased. In determining allowable levels of development along the coast, the capacity of the road should be determined and a large percentage of that capacity should be allocated to recreational driving and access to recreational sites. The remaining capacity should be used to determine the maximum level of new development. Along some parts of the coastline this may mean limiting second-home building to those lots already sold and prohibiting all further subdivision and development. This concept is discussed further in the Transportation and Intensity of Development plan elements.

Coastal Recreational Carrying Capacity

The optimum goal of this chapter is to be able to specifically state, based upon documented fact, the recreational carrying capacity of the various resources of the coastal zone. Unfortunately, due to an insufficient amount of knowledge, it is impossible to make such statements. Knowledge is available only to suggest the broadest guidelines under which the recreational carrying capacity of specific resources can be discussed. These guidelines are offered below.

1. Beaches

Although the absolute carrying capacity for all recreational resources must be the physical capacity, the controlling components of beach recreational use are the social and designed capacity. Sandy beaches are especially tolerant and can support a wide range of recreational activities at high intensities of use (McHarg, p. 13). In virtually all circumstances,

overcrowding resulting in either user degradation, or parking shortages will limit areas and total use prior to any irreversible damage to the sandy beach itself. The main problem associated with sandy beaches is a decreasing beach size due to a dwindling supply of sand, and a growing demand due to increases in population (Parks & Recreation, CCP&RP, pp. 60-62).

An example of the difficulty in determining the carrying capacity of a recreational area is the work of the Irvine Company in Orange County which looked at three methods in order to determine the carrying capacity of the beaches on its property. Using information generated by a private consulting firm, the State Department of Parks and Recreation, and the Southern California Association of Governments, planners for the company estimated that the carrying capacity of the Irvine beaches is somewhere between 15,750 and 55,000 people. Even with this wide range of latitude, the analysis concludes that "...the normal statistics of beach capacity...ignore the important questions of recreational atmosphere... The amount of parking required can vary by a factor of ten, depending on the assumptions made for beach density, persons per car, beach turnover, and other variables such as surrounding land uses, the availability of public transportation and private resort facilities" (TICMAP, pp. 1-2). Thus, even though the maximum carrying capacity of beaches is generally considered to be the social or facility capacity, these components are let out of the normal highly variable beach capacity statistics because they are even more variable.

2. Bluffs and Headlands

For the most part, coastal bluffs and headlands are not the most sought after coastal recreational resource and therefore their physical capacities are seldom exceeded. However, bluffs and headlands are subject to some degree of erosion caused by surface or runoff drainage, human erosion caused by foot traffic of those seeking access to the shoreline, or wave action. Although bluffs and headlands can be used for a wide range of recreational activities, camping is the most popular. Camping can cause problems of soil compaction, retardation of vegetation growth, and soil erosion; however, with proper monitoring such problems are not irreparable. Depending on the particular location of the campsite, either the physical, social, or designed capacity could be the controlling element, although in most situations the designed capacity (number of campsites) is the limiting factor.

3. Tide Pools

As established in the Marine Environment Plan Element, tide pools are among the most fragile of all coastal resources and can support only the most passive and least intensive recreational activities. Because tide pools are so fragile, it has been suggested that booms with decks be erected over tide pools to enable people to observe marine life without disturbing or removing it (San Diego City, p. 90). The removal of plant and animal life from tide pools is a matter of serious concern for two reasons: first, once a tide pool is depleted of marine life its value is greatly diminished; and second, the recovery period of a tide pool often takes years. Thus, the carrying capacity of tide pools must be controlled by their physical capacity in order to maintain their recreational and educational worth.

4. Coastal Wetlands

As the Marine Environment Plan Element explained coastal wetlands are extremely valuable and are particularly vulnerable to misuse; estuaries and lagoons have been dredged for ports and marinas, subjected to sedimentation from upland erosion, filled to provide more land for development, and used as sumps for domestic and industrial sewage. Thus, not only is the total supply of coastal wetlands being depleted, but the quality of those that remain is deteriorating. Because wetlands are so vulnerable to misuse, the physical component of recreational carrying capacity must be the controlling factor. In selecting appropriate recreational activities for wetlands, great care must be taken to ensure that the natural, aesthetic integrity of the wetland is not jeopardized. Recognizing this fact, it has been recommended that only those forms of recreational activities that utilize wind, sun, water or muscle as power sources be allowed in wetlands (Cal Poly, Pomona, p. 138).

5. Bays

Bays have been subjected to the same forces that have served to deplete the supply and degrade the quality of other coastal wetlands. However, because bays are larger in size and receive better flushing action from the ocean, they are not as ecologically fragile. Nevertheless, they have been seriously altered by dredging and especially filling operations that have significantly reduced their size which has served to reduce their recreational potential (BCDC, pp. 1-2). Except for a small bay or artificial basin it is doubtful that a bay could receive enough recreational use for the physical capacity to be the controlling factor, although if the waters were polluted from other sources recreational activities could

be limited. In most situations, the controlling factors of recreational carrying capacity would either be the social or designed capacity. Generally, the waters and beaches of bays are tolerant and can support a wide range of recreational activities at high intensities of use.

6. Nearshore Waters

The nearshore waters have the natural ability to support a broad spectrum of recreational activities at high intensities of use. Because the nearshore waters support many water oriented activities, the main recreational concerns are that the water be safe, in terms of quality and freedom from hazards, and accessible. Due to the high tolerance of the nearshore ocean waters, the controlling recreatonal capacity factors would be the social or designed capacity.

Need for More Research

The solution to the recreational carrying capacity problem of California's coastline is complex. The many variables that are critical to the problem and its understanding (ecological and sociological impacts of recreational use, the determinants of capacity, management responses to capacity problems, and the capacities of the resources themselves) must be subjected to further scientific inquiry and research from which the necessary knowledge will come to base an objective, integrated solution.

Many recreational carrying capacity problems within the coastal zone demand immmediate action, and to delay action until more information is made available will risk irreparable damage, or alteration to irreplaceable natural resources. A definite need exists for the universal application, among all agencies that manage coastal recreation

areas, of a program similar to the State's Allowable Use Intensity Program. The object of this program is to determine those lands most suitable for development and for preservation. Such determinations are based upon an exhaustive inventory of the natural resources of an area, with those resources of highest quality being identified. The product of the study is used in conjunction with the proposed recreational use of the area, and demand projections of the region to arrive at the Resource Management and General Development Plan for the area (California Dept. of Parks & Recreation, Border Field Plan). The State's Allowable Use Intensity Program should be emulated because it utilizes available knowledge and expertise on recreational carrying capacity to its fullest extent, and has the flexibility to incorporate new information produced from on-going research.

CHAPTER V

SMALL CRAFT FACILITIES

Introduction

Of all the recreational activities enjoyed along the California coastline, one of the most controversial is boating. Few will challenge the boaters' right to use coastal waters for, more than hiking, sightseeing, or camping, boating is by its very nature water-dependent and therefore its attendant facilities appear to be a justified use at the coastline. Moreover, boating is an extremely popular activity and as indicated in Chapter I , there is every indication that the demand for boating facilities will continue to increase. However, some of the best locations for small craft harbors are the sheltered bays and estuaries along the California coastline. As was established in the Marine Environment Plan Element, these estuaries and wetlands are the most productive and valuable element of the sea's life system. The dredging and filling operations that are often necessary in order to develop a small craft harbor can effectively destroy large parts of the estuarine environment. In addition, it has been suggested that the boats themselves may result in some adverse effects on the marine environment from sewage discharges and paints used on boat bottoms. Finally, it has been contended that the commercial and residential facilities that are often part of a modern multi-purpose harbor take up a valuable part of the coastal zone for land uses that are reserved for the affluent minority of our population, and that the intensive development around marinas overloads public streets, utilities, and services.

Because of this controversy surrounding boating facilities and because the multi-purpose marina complex is typical of the commercial

recreational facilities that compete with public recreational areas for use of prime coastal areas, this chapter provides an assessment of the impact and characteristics of small craft facilities along the California coastline. Specifically, this chapter provides:

(1) definitions of the more commonly used terms by the boating segment of the recreational/commercial industry;

(2) insights into the uses, types of users, and support activities generally associated with boating; and

(3) information on the potential environmental impacts of small craft facility developments.

Definitions

Small craft facilities differ in size and scope, and are used for many functions. The more common terms used by the California Department of Navigation and Ocean Development for small craft facilities and their auxiliary capital improvement features are listed below:

1. Boat Launching Facility. In its simplest form, a boat launching facility is an unimproved access area where small portable boats can be hand-carried into the water. More often a launching facility includes a boat launching ramp for trailered boats, boarding floats, car/trailer parking areas, and rest rooms; hoists are sometimes provided for launching and retrieving larger boats. A boat launching facility normally requires one to five acres of land.

2. Small Craft Facility. Sometimes called a "small craft harbor" or "marina", a small craft facility has wet berths, floating walkways, and generally includes landside facilities such as paved parking areas, rest rooms, sewage pumpout station, fuel dock, harbor master's office, chandlery, boat repair yard, bait shop, yacht broker,

snack bar, restaurant, and a boat launching facility. A small craft facility is often located in a naturally sheltered estuary or provided with a breakwater for wind and wave protection. A small craft facility is usually about 10 to 50 acres in size.

3. Multiple Purpose Harbor. In addition to having all of the facilities provided by a small craft facility, a multi-purpose harbor is a community in itself which includes residential dwellings such as single family homes, condominiums, or high rise apartments; commercial businesses including retail grocery and clothing stores, motels, and department stores; and public services such as police and fire protection, medical services, public parks and walkways. Large recreational and commercial harbors such as Newport Bay and Marina del Rey each have over 6,000 berths and occupy several hundred acres of land and water.

4. Harbor of Refuge. A harbor of refuge is a temporary haven for small craft in distress or seeking shelter from approaching storms. The primary function of refuge areas is to minimize the risk of loss of life and property damage to the boaters. Existing small craft facilities and multi-purpose harbors can and do serve as harbors of refuge; however, particular sites can serve specifically as refuge areas.

5. Destination Harbor. A destination harbor is a harbor that is used as a layover point or destination point for a traveling boater. Transient berthing facilities such as berthing, mooring, or anchorage area, is the minimum facility required in a destination harbor.

Recreational Use of Small Craft Facilities

To many boaters, a harbor is far more than simply a place to launch a trailerable boat or to berth a boat. The generally accepted concept of recreational boating is that it involves fishing, water skiing,

sailing or cruising to some destination.

Activities occurring at a harbor in which boaters may participate are swimming, tennis, jetty fishing and entertaining friends aboard one's boat. There are no survey data for this dockside use but most boatmen agree that for every activity day away from the dock, one activity day is spent at the dock.

The average size berthed boat is between 26 and 31 feet, is used 53 days per year and contains a party of four people (Arthur Young & Co., 1973, p.B-7). There are 32,000 berthed boats on California's coast which results in an aggregate total of 6,800,000 activity days.

The most popular activities engaged in by the boater are fishing, sailing, cruising, and water-skiing. The predominant activity of boaters with boats less than 20 feet in length is fishing; and, for boats larger than 21 feet, the predominant activity is sailing. Water-skiing is generally limited to inland waters. Recent trends indicate that sailing has become increasingly popular, with sailboats now representing eight percent of the registered boats in California (Arthur Young & Co., 1973). Although sailboats comprise about one-half of the boats berthed in coastal marinas, the trailerable boat is still the favorite among all boaters, with the average size boat in California being 15.5 feet in length (Department of Navigation and Ocean Development data).

Weekend and extended vacation cruising is becoming increasingly popular as sailors become more experienced and as technology makes the newer boats more seaworthy. A small craft facility of 150 to 800 acres opens 30 to 50 square miles of coastal waters for direct recreational use, whether it be fishing, sailing, cruising, photography,

or just enjoying the sometimes serene, sometimes exhilarating moods of the area.

The sheltered areas required for small craft facilities are also ideal for swimming, sunbathing, diving and small boat sailing. Diving activities are enhanced by allowing divers to reach waters by boat that may not be available otherwise. Similarly, a boat basin provides recreational space for novice sailors and small sailboats that would be endangered in open waters.

The support facilities for recreational vessels provide focal points on the waterfront for many people as specific points of interest, places to explore, dine and relax, vacations and business trips of a nature unusual to many inland residents. Recent estimates by government agencies of visitor days experienced annually in Southern California are as follows:

Mission Bay Park	6,500,000
San Diego Harbor	24,000,000
Newport Harbor	10,000,000
Dana Point Harbor	2,000,000
Sunset Aquatic Regional Park	50,000
Long Beach Marina	700,000

Overnight accommodations and restaurants as well as picnic and day use facilities are available at the foregoing marinas.

Finally, all existing small craft facilities along the coast of California have launching facilities available at little or no charge to the boating public. In the counties that border on the Pacific Ocean, there are 265,500 trailerable boats (State Department of Motor Vehicles registration data). Not all of these boaters use ocean waters; and, conversely, there are trailerable boats from in-

land areas that use the ocean waters. Estimates of boat launchings per year at a few typical marinas have been made by harbor masters and are as follows:

Newport Harbor	25,000
Dana Point Harbor	36,000
Sunset Aquatic Regional Park	6,000
Long Beach Marina	70,000
Marina del Rey	17,000

Since most launching facilities in San Diego Bay are free, there are no statistics available on the magnitude of use. However, since launching/recovery is generally directly proportionate to the proximity to good fishing areas, it seems safe to assume that San Diego Bay area probably generates at least as much activity as does the Long Beach area.

Fishing Use of Small Craft Facilities

As discussed in the Marine Environment Plan Element, commercial and sport fishing originating out of California harbors generates some $600 million through the sales of the catch and the support of canneries, fresh fish retail outlets, harbor activities, and other related trades. The largest concentrations of commercial fishermen are located along the north coast (1,846), in San Francisco (1,711), in Los Angeles (2,028), and in San Diego (1,652).

Recreational fishing opportunities provided by small craft facilities are of three types: shore fishing, private boat recreational fishing, and charter boat fishing. There are no specific studies or surveys to determine the extent of shore fishing, but it is estimated that millions of angler days per year are provided by shore facilities.

Landside fishermen generally have access to fishing waters from jetties, breakwaters, seawalls, docks, and fishing piers. Private boats that are berthed at harbors or are launched from harbors also provide Californians with countless hours of recreational fishing. In 1971, commercial party boats for chartering sport fishermen to fishing waters provided 4,600,000 fish for 725,000 anglers (Dept. of Fish & Game, 1973, pp. 11-12).

Residential and Commercial Use of Small Craft Facilities

In recent years, new modern residential communities have developed around and near harbors and marinas. Some of the residents of these areas are boaters wishing to reside near their vessels, but typically about two-thirds of the residents do not own boats. In addition, there are those individuals who, as a matter of personal preference or economic consideration, permanently live aboard their vessels in a manner not unlike mobile home residents. The presence of live-aboards in marinas is said to significantly augment the harbor operator's ability to respond promptly in the event of emergencies such as fire, burglary, or medical crisis.

Despite the enjoyment afforded marina residents who can delight in the invigorating environment and scenic panorama of fluctuating activities normal to a harbor, neither type of residence is without its drawbacks. High density residential developments in combination with the high activity level of a busy marina can generate traffic congestion and crowding (especially on a weekend) that diminishes the quality of the recreational experience for the boater and disturbs the life-style of the resident. And unless his vessel is equipped with a connection to an onshore sewage system or adequate nearby onshore toilet facilities are provided, the live-aboard poses a

potential water quality hazard. Moreover, a permanently moored boat deprives a recreational boat of a berthing space; however, it is contended that most live-aboards are active boaters.

Commercial facilities found in small craft harbors often include boater-related businesses such as a bait and tackle shop, chandlery, yacht broker, charter fishing or sightseeing boats, snack bars, and restaurants. In multi-purpose harbors that include residential areas nearby general commercial support activities may be found. These include grocery stores, clothing stores, real estate offices, banks, restaurants, and gift shops. Like the high density residential areas, these general commercial areas add to the diversity and the congestion of the marina area. However, these support facilities also add immensely to the revenues generated by the marina complex. In a self-serving manner the marina developer is able to use some of these increased profits to provide additional public improvements in the marina complex which in turn draw more of the public to the general commercial businesses in the marina. Both municipal and private developers provide public parking, promenades, picnic and fishing facilities, bicycle paths, swimming accommodations, parks, and landscaping in new harbors and marinas. These improvements in combination with the customary boat rentals, sailing lessons, yacht sales, and boat service have moved the typical marina away from the exclusive yacht club on the one extreme and the primitive, ramshackle piers and dusty parking lots on the other, which characterized boating facilities in the past.

Environmental Impact of Small Craft Facilities

As established in the Marine Environment Plan Element, there are certain adverse environmental effects associated with marina development—particularly when the marina is developed in a coastal estuary or wetland, the most productive and valuable parts of the marine ecosystem. But anywhere along the coastline, the development of a small craft facility will cause inevitable alterations to the natural environment which can be detrimental. This is especially true when filling and dredging are involved in the project development.

Filling shallow waters to increase dry land areas completely destroys the marine habitat in the filled area. While nothing can completely mitigate this total destruction, smaller fill projects such as rubble-mound breakwaters and levees and the development of boating facilities in shallow waters over relatively sterile sandy bottoms may generate some positive effects that partially offset the negative impacts in such ways as creating new habitats for fish and other marine life and providing sites for fishing where none existed before.

Dredging of navigation channels and berthing basins increases turbidity and physically removes the ambient benthic organisms; however, in many cases, the biological community tends to restore itself in a relatively short time, and new water areas can expand the habitat available for bottom dwellers. Heavy metals, when present in underwater soils, may be dispersed by dredging with adverse impact on marine life from the toxic materials. This circumstance is now recognized and studies are under way by the U.S. Army Corps of Engineers to evaluate the degree of impact and possible measures to obviate or mitigate it. Moreover, the U.S. Environmental Protection Agency has established criteria for the disposal of dredge spoils.

A small boat marina may in many ways be comparable to a salt marsh cove according to a study conducted by the University of Rhode Island which compared the ecological systems of two similar coves, one containing three marinas and numerous mooring, and one with no boats, docks, or moorings. The study concluded that the ecological systems of both coves were similar in many ways in that both stimulated the growth and propagation of marine species of many types (Nixon, 1973).

Finally, there is the potential of water pollution from the boats themselves even though the discharge of sewage waste from sanitary facilities on small craft has been prohibited by most harbor jurisdictions for many years. To further protect the marine environment, the State Water Resources Control Board prohibits sewage discharges from boats into coastal waters and some marina operators prohibit "live-aboards" from using heads. Moreover, regulations now pending will require holding tanks on all vessels having sanitary facilities. Thus, effective progress has been made in improving water quality standards.

The discovery of measurable quantities of zinc, lead, copper, and mercury in marinas and harbors led to the conclusion that these materials, which are components in anti-fouling paints used on boat bottoms, got into the water by dissolving or flaking off boat hulls. This conclusion was probably accurate some years ago when "soft" paints were in common use. However, superior "hard" paints are now in use by most boatmen and the more toxic materials are no longer permitted to be used in the paints (Carrick, 1973, p. 78). Moreover, much of the toxic metal may be getting into the water from the sanding and scraping of bottoms in dry docks and haul-out yards where there are no interception devices in the drainage systems. This theory appears

to be substantiated by studies conducted by the Orange County Health Department which found the incidence of heavy metals notably higher near storm drains in the vicinity of repair facilities than elsewhere. Obviously, interception devices should be required at all boat repair docks to prevent this type of pollution of the marine environment.

Yet the greatest environmental damage from boating results from the wholesale alteration of the marine environment to accommodate vast new marina projects. This alteration is most critical when it involves the dredging or filling of marshes and wetlands. Fortunately, there are several alternatives which will allow for even greater boating use of coastal waters while protecting the marine environment. These include:

1. Providing More Dry Storage Areas and Launching Facilities

To accommodate the great number of boats that are stored in garages and driveways and towed to water areas, the number of launching facilities along the coast should be increased. In addition, dry storage areas should be provided near the coastline to take up some of the demand for berthing space. Boats over about 25 feet in length and boats with wooden plank hulls cannot be stored on land, but with technological advances such as special trailers, small tractors, and multi-level structures for stacking stored boats it should be possible to accommodate a large number of boats without developing new berthing areas. Two additional benefits of dry storage areas are: they would permit some of the boat owners who now store their boats at home to keep them closer to the ocean; and they could be built a short distance away from the water so that the immediate shoreline could be kept open for other recreational uses.

2. Expanding Existing Marinas

The boating use of existing marinas can be greatly increased by providing additional berthing space, launching facilities, and dry storage areas. This will also serve to maximize the return on the investment made in streets, utilities, and services at existing marinas before having to repeat the investment at an all-new marina. In order to make optimum boating use of a marina it may be necessary to limit the non-boating-related land uses such as residential and general commercial uses that can overtax the support facilities (such as parking, streets, and utilities) needed around a marina. However, within this overall concept care must be taken to ensure that the "carrying capacity" (see Chapter IV) of the protected waterways and basins of the harbor is not exceeded by overfilling the marina with berthing and launching capacity to the point where there is congestion in the channels or conflicts between small sailing craft and power boats in the basins.

3. Using Natural Harbors

Within bays, estuaries, and coves along the coastline there are often small sheltered areas that can accommodate a launching facility or a few berths without the necessity of protective breakwaters or channel dredging. These areas should be used to the maximum extent possible rather than developing large multi-purpose harbors. By combining a boat launching facility with a nearby dry storage area, a large number of boaters can gain use of the coastal waters. Similarly, by using floating berths and walkways it should be possible to provide wet storage areas within estuaries without endangering the marshes and wetlands nearby. In some cases it may be necessary to build a small

breakwater to protect an otherwise ideal harbor and to carry out some channel dredging; if these are necessary they should be undertaken in accord with the Geology Plan Element policies on breakwaters to ensure that the structure does not impair the longshore transport of sand within littoral cells, and with the Marine Environment Plan Element policies on dredging and the placement of dredge spoils.

4. Dredging New Water Areas Inland

At several areas along the coastline and around bays there are low-level flat dry lands. Some of these are natural while others are areas that were once marshes or wetlands and have since been filled. Where these areas are not used for agricultural use, they can be dredged out to create channels, basins, and berthing space, and to allow for the establishment of new marine habitats. In areas where wetlands have been diked off but not filled there may be a conflict between the goal of rehabilitating these wetlands as recommended in the Marine Environment Plan Element and the concept of dredging the areas for boating facilities. For example, at Bolsa Chica in Orange County and in parts of the Santa Ana River flood plain, there are dry areas which are proposed to be dredged for boating facilities but which also have the potential of being rehabilitated as marshlands. Because of the serious loss of coastal wetlands—particularly in southern California—restoration of these former wetlands should have priority over using them for boating facilities.

5. Maximizing the Use of Each Boat

Because privately-owned boats often sit without being used for days or weeks on end, the use of each boat should be maximized before new berthing space is provided for more under-utilized boats. This

could be accomplished by encouraging cooperatives or partnerships so that several families or individuals could use the same boat at different times. Similarly, boat owners should be encouraged to lease or rent their boats when they are not in use by the owners. This would also permit families who are not affluent enough to own a boat to enjoy a boating vacation. In order for this idea to be realized it will be necessary for the boat owners to have some assurance that the people who rent their boats are competent to operate them. The obvious solution is the establishment of an education and licensing procedure similar to what exists for automobiles and aircraft. Generally, boat operators have resisted the establishment of such a system, but with the increased number of boaters, the interests of safety appear to outweigh the loss of personal freedom making a licensing system imperative.

By pursuing the above approaches simulataneously, the boating public can be provided with increased access to coastal waters without extensively altering or endangering the marine environment. To protect the finite number of boating facility sites along the coast, these sites should be identified and the use of the areas by other long-term uses should be prohibited. Moreover, the potential environmental impact and feasibility of building offshore "islands" to accommodate boating facilities should be investigated.

Multiple Public Use of Marinas

It has become increasingly evident that almost all segments of our society enjoy visiting marinas for the purpose of watching boats and being near the water. Water-oriented commercial activities in harbors such as Marina del Rey have experienced enormous visitor use

by the non-boating public. Further, marinas can provide recreational areas for all, and in particular for the elderly who may prefer the more passive water areas and pedestrian walkways found in marinas to the higher activity levels of beach areas. Even though many marinas were never intended to serve as public parks, the public subsidy they receive in the form of Army Corps of Engineers construction assistance and low-interest State loans justifies a goal that marinas serve as wide a range of public recreational needs as possible.

In order to accommodate the maximum public access to marina areas, the planning of new marinas and marina expansion should always include provisions for pedestrians and bicycles. To accomplish this, parcel lease agreements and other forms of development which do not provide for pedestrian and bicycle rights-of-way should not be permitted. This has been initiated in Marina del Rey which no longer allows private development to pre-empt the use of water edges by requiring that all development be set back from the water to allow roadways and pedestrian access areas to front on the water. This has not always been the case in the past, causing one reporter to comment recently, "Navigating Marina del Rey on a two-wheeled machine is almost an exercise in tacking on land, weaving in and out of restaurant parking lots and avoiding the auto traffic in asphalt channels" (Seidenbaum).

Perhaps the greatest potential for adding needed public use areas to marinas and harbors is in the introduction of people-mover systems which would allow for the elimination of many surface parking areas. Existing parking lots are often located at the water's edge and occupy land which could be put to multiple recreational use rather than serving as vehicle storage areas. Further, many marinas have reserved

much of their remaining open space for future parking needs. The use of remote parking areas for all but boat-related uses and the concomitant installation of local transit systems would allow for the conversion of paved parking areas to green open space uses. The heavy non-boating use and proximity of many marinas to major population centers makes the use of people-mover systems an especially desirable alternative.

CHAPTER VI

STATE COASTAL TRAIL

Introduction

As is clearly established throughout this report, the California coastline is a unique and valuable recreational resource. As one travels along the coast, he comes upon one magnificant scenic wonder after another. Whether it is the surf crashing onto a rocky shore, a wide, sandy beach stretching toward the endless sea, or a foggy mist drifting down through towering redwoods, each discovery of a new experience seems to compel one to travel even further with full confidence that just down the road, beyond the next sand dune, or around the bending shoreline, will be another beautiful vista. The California coastline connects together a string of gemlike scenic wonders into a treasure greater in value than the sum of its individual elements.

This everchanging yet clearly identifiable image seems to create a force that draws people to the coast then moves them along the continent's edge. Each year this mystifying force brings millions of motorists who have come to expect the conveniences of freeway travel to set out over narrow, low speed California Route 1. And they gladly creep and wind along the unusual roadway for the sheer pleasure of following the coastline.

In the Appearance and Design Plan Element, the various physical and psychological aspects of this "mystifying force" are objectively discussed. Applying this objectivity to a recreational context, there appear to be two main reasons why people enjoy travelling along the coast. First, as a recreational experience in itself, travelling along the coast

exposes one to many beautiful sights and permits one to continuously enjoy the sense of freedom that comes from being in an expansive open space. In a way, the coastal zone "borrows" visual open space from the Pacific Ocean. Even along urbanized portions of the coastline, one is able to stand with his back to land and look out over the timeless sea, hear the pounding waves, and enjoy a feeling of solitude that is usually experienced only in a wilderness. The second reason that recreationists enjoy travelling along the coast is because of the variety of recreational activities that can be enjoyed there. Along California's 1,072 mile coastline are located 80 units of the State Park System as well as many other areas under the jurisdiction of Federal, State, and local agencies.

For the most part, the recreational experience of travelling along the coastline and between the public recreational areas is presently limited to the auto-borne recreationist. Yet despite the popularity of "driving for pleasure" as a recreational experience and our society's practice of catering to the needs of the private automobile, a large segment of the coast is not paralleled by a roadway immediately inland. Such areas are effectively closed off to all recreational travel. Increasingly, people are getting out of their cars and finding greater pleasure in travelling on bicycles, horses, and on foot. With 85 percent of California's population concentrated within 30 miles of the coastline, a coastal trail system would provide low-concentration, dispersed recreational experiences for millions of Californians--young and old of all economic means--and bring them both the wonderful experience of travelling along the coast and allow them to reach other coastal recreational facilities.

Need for Coordinated Coastal Trails Planning

There are a number of existing or proposed trails within the coastal zone which might readily be integrated into the coastal trail system. These include trails under Federal jurisdiction such as the Kings Range Trail in Humboldt County and the Bear Valley Trail in Marin County. The State Department of Parks and Recreation in cooperation with local jurisdictions has proposed extensive trail developments in the Santa Monica Mountains and in the Santa Cruz Mountains. Coastal counties such as Marin, San Mateo and Santa Barbara have also planned extensive trail routes. To supplement and coordinate these individual efforts, an overall State coastal trail plan is necessary. In this regard, it should be noted that Assemblyman Dunlap has introduced legislation (AB 3594, State Recreational Trails Act) to establish a statewide system of recreation trails. This legislation will assign responsibility for planning and overall coordination of the system to the Director of Parks and Recreation. It is also significant that the legislation directs the Director to give high priority to planning and implementation of a "State Coastal Trails" route and to connection of the coastal route with the Pacific Crest trail.

Planning and administration of the State Coastal Trails System will be complicated by the linear nature of the route and the complex pattern of ownership in the coastal zone. Moreover, jurisdiction over planning and management of the resources of the coastal zone is spread among a great number of Federal, State and local agencies. Development of a coastal trail system will, thus, call for the designation of a lead agency for planning and coordinating the activities of the number of public and private interests involved. Reflecting the central role which the State is already exercising in coastal zone planning and the present recreation responsibilities of the State Department of Parks

and Recreation in the coastal zone, the Dunlap legislation logically designates to that agency the responsibility for planning and coordinating the State Coastal Trails System.

The Department of Parks and Recreation should be responsible for developing standards and criteria for routes to be included within the State Coastal Trails System. Design standardization over the entire coastal route will be impractical because there are vast differences in topography and other physical characteristics in the coastal zone and dissimilarities in kinds and extent of trail uses. In general, however, a standard of excellence in routing, construction, maintenance and marking should distinguish the State Coastal Trails System. Each segment should stand out in its own right as a recreation resource of superlative quality.

Because of the need to accommodate diverse modes of travel—walking, hiking, bicycling, horseback riding--each with different requirements, the State Coastal Trail should not necessarily consist of single right-of-way throughout its length. Walkers may use the hiking trails for short distances, but generally they need a smooth surface path with ramps or steps to reach beaches, picnic areas, and points of interest. Hikers and equestrians require trails that are unpaved, away from motor traffic, and which may have relatively steep slopes and sharp curves. In contrast, bicyclists need smooth trails, preferably paved; they have a higher tolerance for proximity to other vehicular traffic, and can tolerate only modest slopes and broad curves. Indeed, secondary roads may be used extensively in the development of bicycle routes within the Coastal Trails System. To a large extent, the Coastal Trails System should be at least two trails—a riding and hiking trail and a bicycle trail--which will occupy the same rights-of-way only

to the degree that the combination of uses is made possible by local conditions, particularly terrain. Ideally, a separate trail should be developed for each type of use sharing hostels, shelters, and campsites at reasonable distances.

In viewing potential routes over the entire Coastal Trails System, it is clear that many of the trails should be located within sight and sound of the sea. Many segments, however, may have to be routed inland toward the coastal range in order to take advantage of public land ownership and to avoid heavily developed urban areas where trail development would be infeasible. As noted earlier, many appropriate trail segments already have been developed in the coastal zone on Federal, State and county lands. These segments will be useful as possible initial units in the Coastal Trails System or as lateral and connecting trails. Wherever possible, priority in trail location should be given to lands already in public ownership and efforts should be made to avoid acquisition of private property. A second major consideration in location of trail routes is the need to give priority to potential routes which are accessible to urban areas along the coastal zone and providing public transportation to access points. It is in these areas where potential users of the State Coastal Trails System are concentrated and where demand for additional recreation opportunities is greatest.

In developing the State Coastal Trails System, a variety of facilities should be provided for the use and convenience of trail users. These facilities should include transportation to access points and staging areas, parking and other services such as sanitation and picnic facilities. Campgrounds and hostels should be

provided to accommodate trail users on journeys of more than a day's duration. In relatively remote areas, more primitive types of facilities could be installed to meet the need of veteran, long-distance trail users. Distinctive signing, both on the trail and at access points, would be highly desirable and interpretative materials dealing with the natural and historic values will enhance trail user's experience.

Thus, while the spine of the State Coastal Trails System would extend more than a thousand miles from north to south, it is not anticipated that many trail users will attempt the entire journey. The vast majority of trail use will probably be limited to short trips: from a few hours to a weekend in duration. There is already, however, considerable long-distance bicycle travel along Route 1.

The California Coastal Trails System and its supporting facilities should be designed to blend into the surroundings, whether the predominant use is natural, agricultural or urban in character. Care should be taken to adapt trail alignment to the topography of the lands being traversed and cuts, fills and other disturbances of natural features should be minimized. Non-vehicular bridges should be used to cross canyons, creeks and gullies safely separated from highway traffic to minimize cuts and fills that would be required to go up and down slopes. Plantings, where required, should harmonize with the native flora and minimize maintenance costs. Trail routes should be located so as to facilitate easy access for maintanance and patrol personnel. Signing infor-

mation materials and other methods should be employed to prevent trespass and vandalism on landholdings outside the trail right-of-way. Above all, trail design and location should minimize severance problems and should have as a major objective mitigation of the impact of trail use on surrounding uses of property.

Implementation of the State Coastal Trails System

Realization of the State Coastal Trail will require the use of a number of techniques which should be combined into a single implementation program designed to assure orderly completion of the project. To ensure the success of the State Coastal Trails System two obvious needs must be fulfilled. First is the need for the permanent protection of the natural and scenic qualities and historic features along the State Coastal Trails. Secondly, the right of public passage along the designated routes needs to be guaranteed. The protection of the State Coastal Trail viewshed can most easily be assured by the establishment of a permanent coastal zone management agency with broad regulatory authority over land and water uses. Beyond this, scenic easements can, in many instances, suffice to protect trail values. The State might acquire the private owner's right to develop or use his land in ways that could damage recreation values, while title to the lands would remain in the owner's hands.

In addition, local zoning may be appropriate in certain situations to protect trail values and to assure access to public beaches and tidelands. Other local development regulations, such as subdivision controls may also offer potential in securing and protecting segments of the Coastal Trails. The State should participate with coastal cities

and counties in exploring the potential of such regulations to achieve expanded trail-oriented recreation.

To provide for public right of passage or use of lands to be included within the Trail System, right-of-way easements should be used wherever possible. Public agencies should be empowered to acquire from the owners of land through which the Trails pass, perpetual right for individuals to walk or ride along the specified route. In securing such easements, private owners should be guaranteed that trail users will not conflict with private uses of land. As a way of making such easements more desirable to private landowners, the State should assume liability for injury to trail owners and for damage to private property as a result of trail use. Where such easements cannot be acquired and at most major public facilities which are intended for heavy use (such as access points, parking areas, and campgrounds) public acquisisiton in fee simple of all property rights will guarantee full public control and access. To facilitate such acquisition the power of eminent domain should be made available to the Department of Parks and Recreation for use in acquiring key segments of private landholdings along the Coastal Trail route, but should be used only as a last resort. When proposed, the use of eminent domain to acquire private property should be supported by findings that no other alternatives are available. In all cases, acquisition for trail purposes should avoid severance of private land-holdings and should consider the impact of trail location and design on surrounding private uses of land.

Purchase and leaseback arrangements may be appropriate along some sections of the Coastal Trails. In this fashion the Trails can be protected and at the same time the previous land-owners can continue to pursue activities compatible with recreation uses of the Trails.

It should be noted that the State Streets and Highways Code permits the inclusion of pedestrian and bicycle routes along the State highway system. Moreover, the California Department of Transportation has been assigned the responsibility for the coordination of bikeway planning throughout the State. In certain areas of the coastal zone, the combination of trail routes with highway routes may be necessary; however, it has recently been established that "persons engaging in recreational activities near major concentrations of automobile traffic are probably subjecting themselves to particularly high levels of air pollution" (Everett, 1974, p. 83). Therefore, this combination of trails and roadways should be utilized only where absolutely necessary.

Maintenance of the State Coastal Trails System

As noted earlier, a significant portion of the coastline is already under jurisdiction of public agencies. As a general rule, the land management agency having jurisdiction of the land on which any segment of the Coastal Trail is located should exercise management responsibility for that segment. The State should enter into agreements with such agencies to ensure continuity of trail routes and to provide for uniform design and operational standards. Such agreements are common between State and Federal agencies, such as the U.S. Forest Service, the U.S. Bureau of Land Management and the State Department of Parks and Recreation. Consideration should also be given to the opportunity for youth and user groups to participate in the maintenance of sections of the trails by contract and for cities or service clubs to sponsor, build and maintain huts, hostels, or campgrounds.

Financing the State Coastal Trails System

In recognition of the statewide interest in the State Coastal Trails, the State should be authorized to participate in the development costs of segments of the Coastal Trails which are located on lands under the jurisdiction of other public agencies. Many land management agencies have general authority to finance planning, construction, operation and maintenance of trail facilities on lands they administer. In most instances, however, agencies are unable to finance trail operations outside of the specific areas they administer. Therefore, the State government, through the State Department of Parks and Recreation, should fund the acquisition and development of segments of the State Coastal Trails System outside areas of public ownership. In addition, the State should be authorized to assist in the development of segments of the Trail System which are located on lands under the jurisdiction of other public agencies.

High priority should be given to funding the acquisition and development of the State Coastal Trails. A significant step has been taken with the recent enactment of SB 420 by Senator Collier which provides $2.1 million for trails and hostels and $50,000 for statewide planning. Because opportunities to acquire key segments of the trail may be lost forever if timely action is not taken, the enactment of two additional pending legislative bills is highly desirable: (1) AB 3297 by Assemblyman Chappie which would appropriate $3 million for trails; and (2) AB 3594 by Assemblyman Dunlap which would establish a statewide system of recreational trails. In addition, in the allocation of funds from the 1974 State Beach, Park, Recreational and Historical Facilities Bond Act, priority should be given to portions of the Trail which have special importance.

The State should also seek Federal assistance in the acquisition and development of the State Coastal Trails System. A principal source of such assistance might be the Land and Water Conservation Fund, although this Fund is clearly insufficient to meet demands for outdoor recreation projects in California. For bicycle routes, up to $2 million per year are available to match local funds through the Federal Highway Act of 1973.

The Role of the Coastal Commissions

As noted earlier, the Coastal Commissions can play a key role in protecting the scenic resources which have generated the initial attractiveness of the coast as a recreational trail corridor. Beyond this, the Coastal Commissions should support legislation that would give the Department of Parks and Recreation the power and funding to plan and implement the State Coastal Trails System. Moreover, after the Department of Parks and Recreation has established general planning standards and design criteria, it should work in harmony with the regional commissions as well as with local and county planning agencies (and with intensive public interaction which characterizes the coastal commission's planning process) to determine the exact route of the State Coastal Trails in each region.

After this route has been established, the coastal commissions can assist in the implementation of the State Coastal Trails System by requiring the dedication of the trail right-of-way as a condition in the approval of permits for coastal development. Such conditions have already been imposed by the Central Coast Regional Commission even though the exact location of the trail through the project is yet to be determined (Resolution No. 74-203, February 25, 1974). All

regional commissions should utilize this approach where a coastal property proposed for development encompasses a ridge top, abandoned roadway, or wide beach area, or other features that appear to be a logical route for the main stem or connecting element to the State Coastal Trails System.

CHAPTER VII

EDUCATION AND RESEARCH

Introduction

Over the past decade, the definitions of "recreation" and "education" have become increasingly blurred at the common middle ground the two fields share. With an increasing amount of disposable income and leisure time available, many people are taking educational courses "just for the fun of it". Universities, colleges, adult schools, and other educational institutions have responded to this situation by offering evening courses in California history, weekend seminars in marine biology, and semester field studies in oceanography. At the same time, as our population becomes increasingly more sophisticated, people want more than just amusement in their recreational pursuits. And so park and recreation agencies are providing highly informative interpretive programs which educate park visitors in history and the natural sciences.

To serve this demand for educational recreation (or recreational education), areas along the California coastline with its rich marine environment, unique upland flora and fauna, and historical heritage should be preserved. This concept is reflected in the California Coastline Preservation and Recreation Plan which has adopted the objectives of the State Park System Plan which are: (1) the preservation of significant evidence of the State's history; (2) the preservation of significant examples of the natural and scenic landscape; and (3) the providing of recreational opportunities (CCP & RP, 1971, p. x). The first two of these objectives evidence the increasing orientation toward education in recreation planning.

Beyond this need for the protection of coastal land and waters for general educational use is the even more pressing demand for the preservation and protection of pristine coastal environments for scientific research. It is through this research that the information disemanated in the interpretive programs is learned. More importantly, these research programs provide both the baseline data and a laboratory for the evaluation of man's impact on the natural environment. Such research is extremely critical in the development of an on-going coastal management program for much of the integrated functioning of the coastal ecosystem and man's interrelationship with the system is presently unknown. Moreover, these research areas are necessary for both general and specialized instruction in the technical and professional degree programs offered by California's education institutions.

Thus, there is a need to protect coastal areas for the following educational purposes: (1) baseline studies for the evaluation of man's impact on the environment; (2) carefully limited collection of specimens for laboratory investigation; (3) scientific research; (4) general field instruction; and (5) technical education. The general need for the preservation of coastal research areas has been discussed in both the Marine Environment Plan Element and the Coastal Land Environment Plan Element. However, the most compelling and thorough documentation of this need for education and research areas along the coast is found in "Education and Research", Appendix IX of the Comprehensive Ocean Area Plan which identifies 45 sites along the coast essential for a reasonable coastal research program.

Ironically, one of the activities research sites must be protected from is the intensive recreational education discussed above.

As mentioned in the Marine Environment Plan Element, some tidepools are completely devoid of marine life as a result of overzealous student specimen collectors. All natural education and research preserves require strict protection; those areas set aside for scientific research require the most stringent protection measures of all. Therefore, in areas set aside for research, preservation of the natural environment should have priority over general public access to the coastline. However, in most cases, proper management and facilities can permit general visitation of even the most delicate natural areas.

Types of Research

Five subject areas--biology, geology, geography, archaeology, and history--generally define the type of study that is carried out along the California coastline. Each of these is discussed briefly below.

1. Biology. Because California has an unusual moisture gradient superimposed over a diverse topography, many habitats are found here; some areas support species found no where else. Monterey cypress, for example, occur in nature only in the headlands of Carmel Bay. Western leatherwoods grow only on the slopes above San Francisco Bay, and Torrey pines are found only at La Jolla and on Santa Rosa Island. These types are but three examples of the California flora and fauna that must be preserved for their uniqueness and for the study of their selective relations with the unusual habitats.

2. Geology. Geologists study rock strata and formation as they seek knowledge of hidden natural resources and an understanding of land formation and movement. Fertility variances in the soil are

likewise of primary interest, especially to the wine and grazing industries. The coast is an excellent natural geological laboratory and should be preserved as such for the general interpretation of the earth's history and because it provides unique examples of certain geological phenomena.

3. Geography. Certain coastal areas provide knowledge of the relation of plants and animals to their environment and man's interferance with natural balance. Geography, the study of environmental relationships, is useful in planning and determining land use. Also important to the planning process is knowledge of natural selection and adaptation to environs, factors easily examined along the coast.

4. Archaeology and History. The coast also provides a fine classroom for archaeologists and historians because it was a focal point for Indian culture and early explorations and settlement. Examinations of archaelogical and historical sites yields knowledge of the cultures that preceeded ours and of ecological conditions in prehistoric ages. Such information supplements man's understanding of his own history and help scientists reconstruct events of the past.

Need for Protection

There would be no need for preserving areas for education and research if the natural coastline had been protected from the abuses of man and nature. Unfortunately, this protection has not existed. As a result, mining, logging, highway construction, recreational misuse, dam and canal projects, vandalism, landslides, earthquakes, floods, and especially general urban growth have all taken their toll in destroying areas that would now be valuable for research and education. In the past this loss often took place because there was inadequate

legal protection of the resources. Environmental protection legislation enacted within the past decade has done much to correct this situation. However, much of this destruction has taken place because the natural values of an area not easily recognizable except to scientists. An area that may not appear to be particularly scenic or desirable for recreation may possess a unique combination of acidic soil and a moist microclimate that is supportive of a rare plant or may hide an archaeological treasure under ages of sedimentation.

This situation is exemplified by the fact that as many as 1,400 archaeological sites are destroyed in California each year and that up to one-half of all the sites in the State have already been destroyed even though such sites are protected by numerous county, State, and Federal laws (Moratto, 1973, p. 4). Moreover, even though there has been extensive study in archaeology, only a portion of the coastline has been thoroughly surveyed to reveal archaeology and historic sites. Furthermore, there is no centralized data bank for information on the areas that have been studied.

Thus, in order to ensure that coastal resources are adequately protected for their educational and research value, a three-phased program is necessary:

1. Regulation. In order to protect the resources from inadvertent destruction from man's activities, the scientific community should be involved in the land use decision-making process through such mechanisms as the preparation and review of environment impact statements and reports, and participation in the evaluation of proposed development sites through the Coastal Zone Conservation Commission permit process.

2. Acquisition. In order to permanently protect a complete range of representative unspoiled habitats for research and education, a system of natural and historic preserves should be established along the coastline. Research scientists, educators and recreational planners should be the fundamental decision-makers in determining where these sites should be located, and the recommendations set forth in the report Marine Resources for California Higher Education (COAP, 1972, Appendix IX) should be used as the foundation of this system with whatever additions or deletions are necessary to accommodate other scientific disciplines. In this regard, the California Natural Areas Coordinating Council is presently surveying additional areas of value for the State Office of Planning and Research. Ultimately, many of the sites should be acquired by the public. Until this can be accomplished, the sites should be protected from abuse by the Coastal Zone Conservation Commission's regulatory system.

Some funds are available for this type of program through estuarine sanctuary grants established by the Federal Coastal Zone Management Act. Unfortunately, the total funding of this program is quite limited; therefore, California will have to look to its own resources to fund any large scale acquisition program.

3. Management. Every effort should be made to provide maximum public access to the preserves for educational and recreational purposes. However, this general access should never be permitted to conflict with the principal goal of protecting the natural or historic resource.

RECREATION

BIBLIOGRAPHY

Alldredge, Rendel, "Some Capacity Theory for Parks and Recreation Areas", Trends, Park Practice Program, National Conference on State Parks, July 1972.

Anderson, Frederick R., "Public Rights and the Nation's Shoreline," Environmental Law Reporter, September 1972, pp. 10184-10194.

Bank of America, Outdoor Recreation and Tourism in California, San Francisco, California, 1969.

Bevins, Malcolm I., "Private Recreation Enterprise Economics", Recreation Symposium Proceedings, U.S. Forest Service, Northeast Forest Experiment Station, Upper Darby, Pennsylvania, 1971.

Boettner, F., "Development of Coast Master Plan Approved", The Los Angeles Times, August 20, 1969.

Brewer, W. H., Journal of W. H. Brewer, Yale University Press, New Haven, Connecticut, 1931.

Britton, Martin R., "Marine Resources for California Higher Education", Education and Research, California Comprehensive Ocean Area Plan, Appendix IX, California Department of Navigation and Ocean Development, Sacramento, California, April 1972.

California Assembly Revenue and Taxation Committee Hearing, House Resolution 49 and House Resolution 80, State Capitol, Sacramento, California, February 4, 1974.

California Business and Professions Code secs. 11500 et seq.

California Chamber of Commerce, Transient Occupancy Room Tax Survey, Sacramento, California, August 1971.

California Coastal Zone Conservation Act, California Public Resources Code, secs 27000-27650.

California Coastal Zone Conservation Commission, "Outline for Planning", Unpublished, June 14, 1974.

California Coastal Zone Conservation Commission, Marine Environment, Coastal Land Environment, and Geology Plan Element drafts, unpublished, 1973-74.

California Code of Civil Procedure, secs. 1237, 1238.

California Constitution, Art. XV, secs. 1,2.

California Department of Commerce, Division of Tourism, The Tourist Industry, Sacramento, California January 15, 1973.

California Department of Fish and Game, California Marine Fish Landings for 1971, Sacramento, California, 1973.

California Department of Navigation and Ocean Development, California Comprehensive Ocean Area Plan, Sacramento, California, 1972.

California Department of Navigation and Ocean Development, Memo on Coastal Projects, Unpublished, Sacramento, California 1974.

California Department of Parks and Recreation, California Coastline Preservation and Recreation Plan, Resources Agency of California, Sacramento, California, August 1971.

California Department of Parks and Recreation, California Outdoor Recreation Resources Plan, Sacramento, California, January 1972.

California Department of Parks and Recreation, California Outdoor Recreation Resources Plan, Sacramento, California, 1974.

California Department of Parks and Recreation, Land and Water Conservation Fund Program, Sacramento, California, 1974.

California Department of Parks and Recreation, The Off-Highway Vehicle Report, (Preliminary Draft), Sacramento, California, December 1973.

California Department of Parks and Recreation, Park and Recreation Information System, Planning Monograph No. 2, Sacramento, California, 1966.

California Department of Parks and Recreation, "Projects Recommended for Acquisition and Development" 1974 Park Bond Act, Sacramento, California, February 1974.

California Department of Parks and Recreation, Resource Management Plan and General Development Plan for San Onofre State Beach, Sacramento, California, 1972.

California Department of Parks and Recreation, Resource Management Plan and General Development Plan for Border Field State Park, Sacramento, California, 1974.

California Department of Parks and Recreation, Statistical Report 1972-1973 Fiscal Year, Sacramento, California, 1973.

California Department of Public Works, State Public Works Bulletin, Sacramento, California, August 1971.

California Public Resources Code, secs. 10001, 10002.

California State Polytechnic College, Pomona, Laboratory for Experimental Design, The Coastal Lagoons of San Diego County, Pomona California, June 1971.

California Wildlife Conservation Board, 26th Annual Report., Sacramento, California, 1973.

Carrick, Robert W., "Marine Coatings" in Yachting, August 1973.

Central Coast Regional Coastal Zone Conservation Commission, Resolution No. 74-203, February, 25, 1974.

Chase, J. Smeaton, California Coast Trails: A Horseback Ride from Mexico to Oregon, Houghton Mifflin, Boston, Massachusetts, 1913.

Chubb, Michael and Ashton, Peter, The Creation of Environmental Quality Controls for Recreation, National Recreation and Park Association Technical Report No. 5, Michigan State University, East Lansing, Michigan, 1969.

Clawson, Marion and Knetsch, Jack L., Economics of Outdoor Recreation, published for Resources for the Future, Inc, John Hopkins Press, Baltimore, Maryland, 1966.

Dasmann, Raymond F., Wildlife Biology, John Wiley & Sons, New York, New York, 1967.

Duncan and Jones, Initial Coastline Study and Plan , prepared for the Comprehensive Planning Organization of San Diego County, January 1973.

Duncan and Jones, Initial Coastline Study and Plan—Summary of Findings and Recommendations, for the Comprehensive Planning Organization of San Diego County, San Diego, California, June 1983.

Dyer, Dion, "California Beach Access: The Mexican Law and the Public Trust", in Ecology Law Quarterly Vol. 2, page 571, University of California, Berkeley, California, Summer 1972.

Eckardt, Robert C., "A Rational National Policy on Public Use of the Beaches", in Syracuse Law Review, Vol. 24, p. 967, Summer 1973.

Economics Research Associates, California Tourism Industry, prepared for the Economic Administration of the U.S. Department of Commerce and the California Office of Tourism and Visitor Services, Los Angeles, California, November 1967.

Economics Research Associates, California Tourism Industry 1968, prepared for the California Office of Tourism and Visitor Services, Los Angeles, California, September 1969.

Everett, Michael E., "Roadside Air Pollution Hazards in Recreational Land Use Planning", in Journal of the American Institute of Planners, Vol. 40, No. 2, March 1974.

Fraser, Stephen, "A National Seashore Proves a Mixed Blessing for its Surrounding County" in City Magazine, January and February 1972.

Fisher, Anthony C. and Krutilla, John V., "Determination of Optimal Capacity of Resource Based Recreation Facilities" in Natural Environments ed. John V. Krutilla, published for Resources for the Future, Inc., John Hopkins Press, Baltimore, Maryland, 1972.

Gion v . City of Santa Cruz, Dietz v. King, 2 Cal. 3d 29, 84 Cal. Rptr. 162, 465 P. 2d 50 (1970).

Gruen Gruen & Associates, A Socio-Economic Analysis of California's Sport and Commercial Fishing Industries, prepared for the State of California Resources Agency, San Francisco, California, June 1972.

Gruen Gruen & Associates and Sedway/Cooke, Approaches Towards a Land Use Allocation System for California's Coastal Zone, prepared for the California State Department of Navigation and Ocean Development of the Resources Agnecy, October 1971.

Hermosa Beach, City Manager of, Beach Development Plan for Hermosa Beach, Hermosa Beach, California, January 1971.

Katz, Myron, Potential for the Recreation and Tourist Industry in the Northwest, prepared for the Bonneville Power Administration, Portland, Oregon, 1967.

Leeds, Hill, and Jewett, Inc., California Small Craft Harbors and Facilities Plan, San Francisco, California, March 1964.

Lime, David W. and Stankey, George H., "Carrying Capacity: Maintaining Outdoor Recreation Quality" in Forest Recreation Symposium Proceedings, Northeast Forestry Experimental Station, Upper Darby, Pennsylvania, 1971.

Mason, Herbert L., The Scenic Scientific, and Educational Values of the Natural Landscape of California, California Department of Parks and Recreation, Sacramento, California, 1970

McGimsey, Charles R. III, Archeology and Archeological Resources: A Guide for Those Planning to Use, Affect, or Alter the Land's Surface, Society of American Archaeology, Washington, D.C., 1973.

McHarg, Ian, Design with Nature, published for the American Museum of Natural History, Doubleday & Company Inc., Garden City, New York, 1969.

McKeon, Steve A., "Public Access to Beaches" in Stanford Law Review, Vol. 22, p. 564, Stanford, California, February 1970.

Miller, D. J., Geibel, John and Houk, James L., Results of the 1972 Skindiving Assessment Survey, Pismo Beach to Oregon, Marine Resources Technical Report No. 197, Claifornia Department of Fish and Game, Sacramento, California, 1972.

Moratto, Michael J., The Status of California Archaeology, Society for California Archaeology, Special Report No. 3, San Francisco, California, May 1973.

National Association of Engine and Boat Manufacturers, Industry "Energy" Position Paper, Greenwich, Connecticut, 1973.

Newport Beach, City Manager of, "Revenue and Cost of Regional Recreational Areas in Newport Beach", submitted to the Mayor and City Council of Newport Beach on May 29, 1973.

Newport Beach, City of, Marine Safety Department, Expenditures and Revenues—Ocean Beach Regional Use Effects, City of Newport Beach, Newport Beach, Californai, January 1974.

Nixon, Scott W., Oviatt, Candace A. and Northby, Sharon L., Ecology of Small Boat Marinas, Marine Technical Report Series No. 5, University of Rhode Island, Kingston, Rhode Island, 1973.

Oliphant and Marine Fisheries Statistics Staff, Fish Bulletin 159, California Marine Fish Landings for 1971, State of California Department of Fish and Game, Sacramento, California, 1973

Oregon Revised Statutes, secs. 390.610-390.640.

Overview, "Policies for Planning"; in Recommended Master Plan for the East Bay Regional Park District, Berkeley, California, 1973.

Paul, James, "Can a Residential Development Pay Its Own Way?" in San Jose: Sprawling City, by the Stanford Environmental Law Society, Stanford, California, 1971.

Payot, Georges, Bio-Social Analysis, Doctoral Exam, Berkeley, California, October 1972,

Recreation and Youth Services Planning Council, The Operation of Public Beaches in the Los Angeles Region, Los Angeles, California, March 1964.

Romero and Schenkel, "Saving the Seashore: Management Planning for the Coastal Zone", in Hastings Law Journal, Vol. 25, p.191, 1973.

San Diego City Planning Department, The Ocean Edge of San Diego, San Diego, California, July 1969.

San Diego Coast Regional Commission, Life in the Sea—The Marine Environment, San Diego, California, March 1974.

San Diego Coast Regional Commission, Coastal Geology and Geologic Hazards, San Diego, California, April 1974.

San Francisco Bay Conservation and Development Commission, San Francisco Bay Plan, San Francisco, California, January 1969.

Sanders, Norman, "The New Tide of Coastal Legislation", in the Sierra Club Bulletin, February 1973.

Santa Barbara County Trails Council, Santa Barbara County Coastal Trails System, Santa Barbara, California, October 1973.

Schenk, Robert E., Archives of California Archaeology, Society for California Archaeology, San Francisco, California, 1968.

Sea Grant, Publication No. USC-CG-4-71, Marina Del Rey: A Study of Environmental Variables in a Semi-Enclosed Coastal Water, University of Southern California, Los Angeles, California, 1971.

Security Pacific National Bank, The Southern California Report, Los Angeles, California, March 1970.

Seidenbaum, Art, "Pedaling the Pacific", in the Los Angeles Times, March 27, 1974.

Seidenbaum Art, "Beaches in the Sun", in the Los Angeles Times, April 10, 1974.

Stanford Research Institute, California Recreation and Parks Study, Part I, California Department of Parks and Recreation, Sacramento, California, 1965.

Stankey, George H., "A Strategy for the Difinition and Management of Wilderness Quality", in Natural Environments ed. John V. Krutilla, published for Resources for the Future, Inc., John Hopkins Press, Baltimore, Maryland, 1972.

Stankey, George H., and Lime David W., Recreational Carrying Capacity: An Annotated Bibliography, United States Forest Service, General Technical Report INT-3, Washington, D. C., March 1973.

Sudia, Dr. Theodore W. and Simpson, James M., "Recreational Carrying Capacity of the National Parks" in Guidelines, Vol. 3, No. 3, Park Practice Program, National Recreation and Park Association, May/June 1973.

Texas Open Beaches Act, Article 5415d, Vernon's Civil Statutes.

The Irvine Company Coastal Community Multi-Agency Planning Program, "TICMAP Memorandum: A Response to the Question of Beach Capacity", Proceedings of Meeting Number Six, Wednesday, May 1, 1974, Newport Beach, California.

Thornton v. Hay, 254 Or. 548, 462 P. 2d 671 (1969).

Tribe, Charles A., Recreation Carrying Capacity, United States Forest Service, Division of Recreation and Lands, Northern Region, Ogden, Utah, 1972.

U.S. Army Corps of Engineers, Local Economic Considerations in Connection with the Dos Rios Project, San Francisco, California, January 1968.

U.S. Army Corps of Engineers, National Shoreline Study, California Regional Inventory, San Francisco, California, 1971

U.S. Bureau of Outdoor Recreation, Briefing Notes—How the U.S. Recreates, Sacramento, California, 1973.

U.S. Bureau of Outdoor Recreation, Outdoor Recreation, A Legacy for Am America, Government Printing Office, Washington, D.C., 1974.

U.S. Bureau of Outdoor Recreation, Santa Monica Mountains Study, Government Printing Office, Washington, D.C., 1973.

U.S. Congress, H.R. 10395, proposed National Open Beaches Act of 1973.

U.S. Department of Housing and Urban Development, Memo on Open Space Projects, San Francisco, California, 1974.

Van Doren, Carlton S., Outdoor Recreation Space Standards, U.S. Department of the Interior, Bureau of Outdoor Recreation, Washington, D.C., 1967.

Vaux, Fowler, and Thorton, Socio-Economic Impact Data for the Redwood National Park, prepared for the U.S. Department of the Interior, Berkeley, California, 1973.

Wahrhaftig, Clyde, Farrel, Phillip and Anderson, Stephen D., "Progress in Understanding the Tradeoffs Between Mineral Extraction and Wilderness Preservation" unpublished, 1974.

Western Surfing Association, National Surf Life Saving Association Surf Break Survey, South Laguna, California, March 1974.

Whitney, Stephen, "Walk a Giant Staircase" in the Sierra Club Bulletin, Volume 38, No. 5, May 1973.

Young, Arthur & Company, Boating Resources Development Planning Study, for the California Department of Navigation and Ocean Development, Sacramento, California, October 1973.

APPENDIX

Projects Recommended for Acquisition from the 1974 Park Bond Program

by the

Proposed Program

Under the State Beach, Park, Recreational,
and Historical Facilities Bond Act of 1974

State of California
Department of Parks and Recreation

April 1974

Projects Recommended for Acquisition from the 1974 Park Bond Program

COASTAL PROVINCE

New Projects and Major Additions to Existing State Park Units ($27,900,000)

1. South Carlsbad State Beach - San Diego County

   There are two proposed additions to South Carlsbad, the first consisting of approximately 11.3 acres with 1,600± lineal feet of ocean frontage at the north, or upcoast end of the existing state beach. This area consists of an excellent sandy beach backed by a bluff and some developable upland. The second area consists of approximately 24.7 acres with 4,900± lineal feet of ocean frontage on the south, or downcoast end of the existing State ownership. This area consists of excellent sand beach encompassing the San Marcos Creek outlet and has sufficient depth to provide day use parking for beach use. This acquisition will connect this unit and the Leucadia State Beach unit to the south.

2. Border Field State Park - San Diego County

   This proposed addition of 390± acres consists of 6,000± lineal feet of sandy ocean beach frontage, and the Tijuana Estuary and adjacent marsh land. The ocean beach frontage has excellent day use potential, and the Tijuana Estuary is rich in aquatic and wildlife resources with significant scientific and educational values.

3. Malibu Lagoon State Beach - Los Angeles County

   This proposed addition of 22± acres is located on the inland side of the existing state beach unit. It consists of stream riparian areas with developable uplands for picnicking, hiking and access to the beach. There are also archeological values within this area.

4. Los Angeles County Beach - Los Angeles County

   This new project area is located approximately two miles downcoast from Leo Carrillo State Beach. It consists of two parcels which total 18± acres with 900± lineal feet of ocean frontage. Parcels can be developed to picnicking and day use parking providing access to the beach.

5. Point Dume State Beach - Los Angeles County

   This is a downcoast addition to Point Dume State Beach (which is operated by Los Angeles County as a part of their Zuma County Beach). This acquisition of 38± acres with 3,000± lineal feet of ocean frontage will preserve the historically scenic Point Dume Headlands which rises to approximately 200 feet above the ocean offering panoramic views of this section of the coastline. This parcel also has some very fine sandy beach area.

6. El Capitan State Beach - Santa Barbara County

This proposed downcoast addition to El Capitan State Beach would add 300± acres with 8,000± lineal feet of ocean frontage. The parcel has excellent potential for picnicking, camping, hiking and beach uses.

7. Irvine Coast - Orange County

This is a new project area located between the communities of Newport Beach and Laguna Beach. It consists of 1,600± acres with 18,500± lineal feet of ocean frontage. The primary uses will be picnicking and hiking related to the area's excellent sandy beach.

8. Little Sur River - Monterey County

This is a new project area located in southern Monterey County, approximately seven miles north of Pfeiffer Big Sur State Park. The project covers 780± acres with 4,500± lineal feet of ocean frontage, and has an ocean beach, fresh water lagoon, coastal grassy meadows which blend into a pine and redwood forested area in the upper or inland reaches of the project. Potential uses include picnicking, camping, hiking and beach usage.

9. Ano Nuevo State Reserve - San Mateo County

This proposed addition of 550± acres and 9,000 lineal feet of ocean frontage extends northward, or upcoast of the existing state reserve. The area could be characterized as a large gently sloping uplifted sea terrace covered by stabilized and shifting dunes. Much of the coastline consists of sandy beaches with adequate uplands for multiple uses.

10. Purisima Ranch - San Mateo County

This is a new project area just south of the community of Half Moon Bay, consisting of 1,770± acres with 16,000± lineal feet of ocean frontage. The project has beaches backed by bluffs, and flat uplands. Inland of the Coast Highway, which passes through the project, are rolling coastal hills, bisected by Purisima Creek. The project will support camping, day use, hiking, and fishing.

11. Morro Bay State Park - San Luis Obispo County

This proposed addition to Morro Bay State Park would consist of 2,500± acres which would complete the Morro Bay Estuary and shoreline with uplands near Los Osos Creek and Cerro Cabrillo Peak. The primary purpose is for preservation and interpretation programs.

12. Garrapata Beach - Monterey County

This is a new project area approximately five miles south of Point Lobos State Reserve. It consists of 60± acres with 4,000± lineal feet of ocean frontage. This is one of the most popular beaches in the Big Sur Area and would support picnicking, fishing, and other beach uses.

13. San Gregorio/Pomponio State Beaches - San Mateo County

This proposed addition consists of 600± acres with 2,500± lineal feet of ocean frontage and will connect the two state beaches. The ocean frontage

consists of sandy beach backed by a bluff. The lands inland of the Coast Highway are primarily grass and chaparral covered coastal uplands, as well as riparian areas along Pomponio and San Gregorio Creeks. Uses may include camping, picnicking, beach use and trails primarily along the ocean and adjacent to the two streams.

14. Pismo State Beach - San Luis Obispo County

This proposed addition would add 390± acres with 3,500± lineal feet of ocean frontage to Pismo State Beach. The parcel encompasses Oso Flaco Lake and adjacent sand dune areas. Public use facilities would include day use, off-highway vehicle use and a major parking area out of the dunes to serve the beach.

15. Marina Beach - Monterey County

This is a new project area located just north of the City of Monterey near the community of Marina. It consists of 180± acres with 6,000± lineal feet of ocean frontage. The project has a fine sandy beach which would support sun bathing, fishing and other beach uses. The upland area behind the beach could support picnicking and limited camping.

16. Salt Point State Park - Sonoma County

This proposed addition of 350± acres and 5,000± lineal feet of ocean frontage extends northward or upcoast of the existing state park and between the ocean and Kruse Rhododendron State Reserve. The property has potential for limited picnicking, camping, beach use and hiking, but the main objective is additional shoreline and adjacent upland preservation.

17. Pigmy Forest Ecological Staircase - Mendocino County

This is a new project area located approximately 4 miles south of the town of Fort Bragg. It consists of 620± acres with 5,000± lineal feet of ocean frontage. The project includes a unique ecological staircase of marine terraces along Jug Handle Creek. Public use will be primarily preservation oriented with nature study, hiking, trails, hostels, picnicking, etc.

Inholdings and Additions to Existing State Park Units ($6,200,000)

18. Leo Carrillo State Beach - Los Angeles/Ventura Counties

This proposed addition is upcoast of the existing Leo Carrillo State Beach and consists of beach and bluff uplands between the ocean and Highway 1 in Ventura County. It consists of 35± acres with 2,500± lineal feet of ocean frontage. The property has an excellent beach similar to that found at Leo Carrillo State Beach backed by approximately a 100-foot bluff and a marine terrace. Potential uses include hiking, water and beach-related activities such as swimming, surfing, scuba diving and sunbathing as well as archeological and environmental interpretation.

19. San Elijo/Cardiff State Beaches - San Diego County

This proposed addition is located between the ocean and the Coast Highway and between Cardiff State Beach and San Elijo State Beach. It consists of approximately 3.7 acres with 175± feet of ocean frontage. Acquisition of the parcel will eliminate all inholdings between San Elijo and Cardiff State Beaches. Future development would consist of day use facilities related to beach use.

20. Malibu Lagoon State Beach - Los Angeles County

This proposed 10± acre addition is located upcoast of the existing state beach and next to the Coast Highway. Developments will be day use in support of beach use.

21. San Clemente State Beach - Orange County

This proposed addition consists of 7.7± acres and is located south of the existing campground. It consists of ocean bluff upland overlooking the existing state beach. Future development will consist of expansion of the existing camping facilities and safe pedestrian access under the railroad to the beach.

22. Torry Pines State Reserve - San Diego County

The proposed addition of 280± acres consists of the Penasquitos Estuary which is rich in aquatic and wildlife resources and has significant scientific and educational values. The proposed addition adjoins State Park System lands now classified as a natural preserve. Future developments would include facilities necessary to interpret, protect and manage the scientific, educational and natural resources of the estuary and reserve.

23. Refugio State Beach - Santa Barbara County

This proposed addition consists of 42± acres with 9,000± lineal feet of ocean frontage. It extends upcoast of the existing state beach unit to a point just upcoast of the Tajiguas Creek outlet. The addition will preserve more shoreline and will be used primarily for beach-oriented activities.

24. Gaviota State Park - Santa Barbara County

This proposed addition consists of 120± acres in the Hot Springs area near the junction of Highway 101 and Highway 1. This property is necessary to gain control of access to the Hot Springs area and will round out the boundary of Gaviota State Park in this area to a more natural line. Public use will be primarily day use oriented.

25. McGrath State Beach - Ventura County

There are two proposed additions to McGrath State Beach, the first consisting of 80.2± acres which has frontage on McGrath Lake. Standard Oil has a natural gas facility on this property which is generally flat, developable land with some low sand dunes. The property could be

developed for day use and/or group camping. The second parcel consists of 28.3± acres at the southerly or downcoast end of the existing state beach lands. The area is generally flat with some low sand dunes and is presently being used as a go-kart race track. There would be minimal development of this property which is needed to provide better resource protection of the existing unit.

26. Pescadero State Beach - San Mateo County

This acquisition of 340± acres will complete acquisition of the Pescadero Marsh of which a little over 50% is presently in State ownership. The proposal includes upland area to serve as buffer and protection and includes the confluence of Pescadero and Butano Creek just prior to their combined mouth in the Pacific Ocean. The site has potential for development as an excellent bird education center. Development would consist of trails for observation of the over 160 species of shore birds, waterfowl and water-associated birds which utilize the marsh.

27. Manresa State Beach - Santa Cruz County

This proposed addition consists of 70± acres of marine terrace overlooking the existing Manresa State Beach. It will provide a mid-point access to the state beach as well as developable upland for camping, picnicking and day use facilities relating to the beach use.

28. Zmudowski/Jetty State Beaches - Monterey County

This proposed addition of 100± acres with 2,700± lineal feet of ocean frontage lies between the two existing state beach units. It contains sand dunes and marsh areas, and has preservation values as well as some camping, day use and fishing potential.

29. New Brighton State Beach - Santa Cruz County

This proposed addition to this heavily used state beach would consist of 95± acres and 1,540± lineal feet of ocean frontage. The project has an excellent sandy swimming and sunbathing beach backed by a relatively steep bluff and upland which is heavily wooded. Development would consist of camping in the upper forested areas and day use facilities relating to the excellent sandy beach.

30. Pomponio State Beach - San Mateo County

This inholding located adjacent to Horseshoe Gulch and consisting of 14.7± acres is surrounded on three sides by the existing state beach and on the fourth side by Highway 1. The property is presently for sale and its acquisition will eliminate an administrative problem as well as provide area for public access and day use facilities relating to beach use.

31. Sunset State Beach - Santa Cruz County

This proposed addition of 13± acres is a complete inholding within the existing Sunset State Beach. The property consists primarily of open fields. Acquisition of this parcel will remove an administration problem as well as provide additional upland for development of day-use oriented facilities.

32. Morro Bay State Park - San Luis Obispo County

There are two proposed additions to Morro Bay State Park under the inholdings and additions portion of funding. The first area consists of 90± acres with 3,700± lineal feet of ocean frontage as well as frontage on Morro Bay. The area is a natural sand peninsula bounded by the ocean and Morro Bay and consists primarily of sand dunes. This parcel is primarily preservation-oriented and acquisition will preserve it from inappropriate development. The second area consists of approximately 50 acres at the southern end of Morro Bay. This acquisition is primarily habitat preservation for the Morro Bay kangaroo rat to create an ecological reserve for this rapidly disappearing species.

33. Thornton State Beach - San Mateo County

This proposed addition would add 36± acres with 1,000± lineal feet of ocean frontage north or upcoast of the existing Thornton State Beach. The parcel contains excellent sandy beach backed by bluffs and upland areas. Proposed developments could include a more aesthetic park entrance, additional beach access trails and added beach-related day use facilities.

34. Atascadero State Beach - San Luis Obispo County

There are two proposed additions to this unit. The first being a 30± acre parcel adjacent to and inland of the existing state beach. The parcel is comprised of recently established sand dunes and flat upland area. This acquisition will place in public ownership the recently established sand dune area and provide necessary areas for day use parking. The second acquisition consists of 85± acres with 3,400± lineal feet of ocean frontage between the existing state beach and the Morro Rock Reserve. Developments on the property may consist of day use parking areas for use of the beach as well as to serve the Morro Rock Reserve.

35. Julia P. Burns State Park - Monterey County

There are three inholding parcels within this park which are proposed for acquisition. The first parcel is an L-shaped 120± acre area near the northern boundary of the state park. The second parcel consists of 50± acres with 2,500± lineal feet of ocean frontage and is a complete inholding along Highway 1. The third parcel is a complete inholding and consists of 40± acres in McWay Canyon. Acquisition of these parcels will eliminate private access and administrative problems.

36. Tomales Bay State Park - Marin County

This proposed 60± acre parcel with 2,100± lineal feet of frontage on Tomales Bay is a complete inholding. It contains the area known as

Shallow Beach and a small marsh area behind the beach. Acquisition will eliminate private access and an administrative problem.

37. Dry Lagoon State Park - Humboldt County

There are two proposed additions to this unit, the first being a 200± acre parcel with 16,000± lineal feet of waterfrontage on Stone Lagoon. Potential development includes camping and day use facilities including boat launching potential into Stone Lagoon. The second parcel consists of 51± acres with 2,000± lineal feet of ocean frontage and a like amount of frontage on Big Lagoon. The parcel consists of sand spit lands which presently divides the state park ownership. Acquisition of this parcel would eliminate an inholding as well as protect the area from inappropriate development.

38. Patrick's Point State Park - Humboldt County

This proposed addition contains 180± acres and 3,800± lineal feet of ocean frontage. The parcel includes the area known as Agate Beach backed by a steep bluff and a high marine terrace covered with a stand of spruce and alder. Agate Beach has been utilized informally by park visitors though in private ownership. The acquisition would insure continued public use of the beach as well as provide additional lands on the marine terrace for camping and day use facilties.

39. Van Damme State Park - Mendocino County

~~This proposed addition of 169± acres lies adjacent to the northerly~~ boundary of Van Damme State Park. The area is a gently sloping parcel covered with a stand of second growth redwoods and three or four small meadows. This acquisition will provide land to relocate the camping facilities from the resource oriented area in Little River Canyon as well as to provide a buffer zone for this canyon.

40. Russian Gulch State Park - Mendocino County

This proposed addition of 110± acres lies adjacent to and north of the existing state park unit. It is gently sloping land with a forest of douglas fir and bishop pine as well as grassy meadows. It would provide developable land for relocation of the existing campground in Russian Gulch Canyon. This is a resource oriented acquisition in that it will remove camping from an area that should be preserved and protected.

41. Azalea State Reserve - Humboldt County

This proposed addition consists of two parcels totaling 10± acres. The parcels are located between the reserve and the North Bank Road which parallels the Mad River. The area is gently sloping and covered with grass, brush and some trees. Acquisition of these two parcels would eliminate potential of developments distracting to the existing reser and would be used by the State for trails and nature study.